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AMERICAN GAS LIGHT JOURNAL

VOLUME CV., No. 21. Whole No. 2063. NEW YORK, MONDAY, NOVEMBER 20, 1916. Subscription, $3 Per Year. $4 Canada. $5 Foreign.

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should look into the question of installing

DESSAU VERTICAL RETORTS.

They are built as small as 175,000 cu. ft. per day.
The Investment Cost is low and there is obtained:

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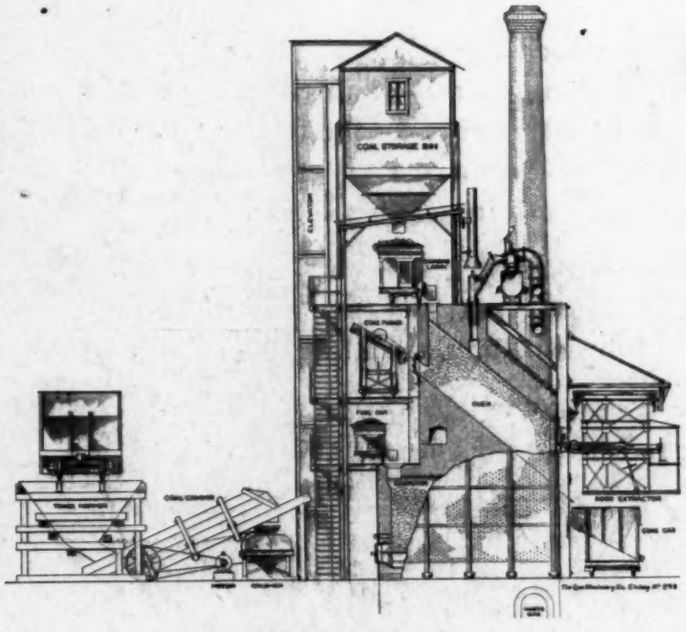

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CLEVELAND, OHIO

1859 FIFTY-EIGHTH YEAR 1916

AMERICAN

GAS LIGHT JOURNAL

VOL. CV., No. 21. NEW YORK, NOVEMBER 20, 1916 WHOLE No. 3,063.

A Jersey Mayor with a Sense of Humor Gives Annual Convention of National Gas Association a Good Start

Features Abound in a Convention at which Even Weather Could Not Put a Damper on Spirits of Those in Attendance—Address of Samuel Insull on Differential Rates High Point of First Day's Session—James T. Lynn Proves Popular Selection as President for Ensuing Year.

Mayor Bacharach of Atlantic City is possessed of a fine sense of humor. For that reason the notably successful convention of the National Commercial Gas Association, held last week in that city, was started off with those in attendance in a favorable and receptive frame of mind.

The delegates began to arrive Sunday, Nov. 12. By the following morning the registrations became so numerous as to forecast the unusually large attendance that materialized by Tuesday night.

At 10 o'clock Tuesday morning President Jansen Haines opened the convention with the assembly room filled to overflowing.

There was presented an excellent chance for a small slip-up to mar the occasion. For a moment it looked as if many would be compelled to stand throughout the session.

But the management in the emergency gave proof of its efficiency. Seats were found for all in a very short time.

Mayor Bacharach, at the beginning, explained that he was no orator. Perhaps he isn't. During his address of welcome, however, he did not bear out his own words. And he is possessed of a fine sense of humor; a trait for which his listeners were duly grateful.

From beginning to end his utterances drew forth constant peals of laughter—not the polite, conventional kind, but that of the spontaneous variety that is in itself the speaker's best incentive to further endeavor.

Only once did Mayor Bacharach verge on the usual. His reference to the gas men as being possessed of so much "enlightenment" sounded somewhat suspicious. But His Honor leaped this hurdle successfully, and ended up his address amidst a storm of applause.

W. J. Clark in the response also qualified as a humorist, and the convention was in excellent spirits when Jansen Haines arose to make his presidential address.

Idealism was its keynote, and the reception it was accorded proved beyond question that the gas man is not, as some would have us believe, steeped in materialism, but is gifted to see beyond the obvious, believes in the usefulness of his industry, and aspires to aid in its progress as much from the viewpoint of good citizenship as from the viewpoint of dollars and cents.

Election of Officers

The committee on amendments offered two amendments to the constitution and by-laws, one of them being that the membership of the Board of Directors be increased, and the other relating to annual dues of company members. Both were unanimously adopted.

The nominating committee recommended the following as officers for the ensuing year: President, James T. Lynn, National Gas, Electric Light & Power Company, Detroit; first vice-president, Arthur Hewitt, Consumers Gas Company, Toronto, Ont.; second vice-president, Harry D. Schall, Detroit Stove Works, Detroit, Mich.; third vice-president, W. W. Barnes, Bayley & Sons, New York, N. Y.; treasurer, Oscar H. Fogg, Consolidated Gas Company, New York, N. Y.; secretary, Louis Stotz, 61 Broadway, New York, N. Y.; directors for one year, to November, 1917, C. A. Munroe, H. S. Schutt, R. R. Young, J. J. Burns, C. E. Bartlett, W. G. Gribbel, J. C. D. Clark, Samuel J. Dill; directors for two years to November, 1918, F. J. Rutledge, John Gribbel, C. W. Bennett, W. M. Crane, H. C. Fritz, C. W. Wardell, S. C. Bratton, C. T. Knight. These nominations proved very popular, particularly that of Mr. Lynn.

The time and place committee, through Arthur Hewitt, its chairman, recommended that the decision in regard to next year's convention should be deferred to the new officers. The suggestion was adopted. The morning's session was closed with the report of the board of educational control.

The report of the public policy committee was not made as scheduled at the opening of the afternoon's session, due to the absence of T. N. McCarter. Instead "A Plea for Quality Merchandise," programed as the production of W. W. Barnes, of Bayley & Sons, Inc., of New York, and secretary of the Manufacturers Section, but, according to Mr. Barnes, the work of various members of the section was advanced two numbers, and read by W. Griffin Gribbel, of John J. Griffin & Company of Philadelphia.

Samuel Insull then made an address, plentifully illustrated by lantern slides, on differential rates. In the opinion of many gas men, as expressed later, this is a subject of vital importance to the industry. It was their opinion also that no more authoritative speaker than Mr. Insull could have been found to present them the information.

Mr. Insull spoke with his customary frankness, and did not mince words. Considerable comment was aroused by the facts he presented, and the opinions he expressed in conclusion. One man prominent in the gas industry expressed the thought that was doubtless in the minds of many, when he stated that "the gas industry can learn a great deal from Samuel Insull, and it is a favorable sign that it has been possible for the industry to get him as a speaker at the two great National conventions held within the space of a very few weeks."

"I am not saying," continued this gas man, "that we agree with him in everything he says, but the gas industry, like every other industry, has come to the point where it appreciates that much time, thought and effort can be saved by reaching out into other fields to find methods and developments that can be adapted to our own purposes."

Arthur Hewitt discussed Mr. Insull's address from the gas man's standpoint, and Henry L. Doherty, after being compelled to introduce himself, went on record as being in accord with the views expressed by the latter.

The sessions for Tuesday were closed by the paper on "Graphic Presentaion of Gas Company Statistics," by S. C. Tarrant.

EARLY WEATHER CONDITIONS NOT PROMISING

Those travelers who arrived on the evening train Sunday, came to Atlantic City in the midst of a heavy rain. Monday morning's skies did not look promising and the cloudiness continued throughout the two days following. Snow was falling Wednesday morning, but in the afternoon the skies cleared and cold weather set in.

The free roller chairs were not very heavily drawn upon, Monday morning, many doubtless figuring that the gray weather was accompanied by a chill in the air. But as the hours advanced towards noon, those present began to appreciate that the clouds were a delusion, and the temperature quite comfortable. In the afternoon the yellow card bedecked chairs were very much in evidence along the length of the Boardwalk.

A feeling of friendship and the get-together spirit characterized the whole convention. The sessions and the exhibits drew all the attention the most exacting could desire, and apparently were equally profited by the gas men.

More than one thousand were in attendance at the convention.

New Type of Seal Pot Does Away with Tar Accumulations

A new type of seal-pot described by L. B. Jones for the "Wrinkles" department of the Pacific Coast Association below, installed for a battery of secondary scrubbers, has occasioned much interest on the part of visitors to our Potrero Works of the Pacific Gas & Electric Company.

This design is a sort of evolution of seal-pots. In the early scrubbers the overflow was arranged by means of a branch riveted to the shell near the bottom and then through an elbow to a seal-

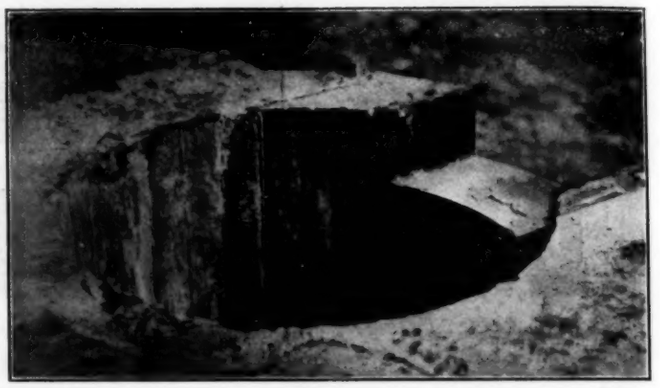
DESIGN AN EVOLUTION OF SEAL POTS

pipe to a steel seal-pot arranged convenient to the foundation. As the lowest point in such a type of overflow is necessarily several inches above the bottom of the scrubber, this permitted an accumulation of tar in the bottom of the scrubber which soon caused trouble.

To overcome this overflow branches were then installed to the bottom of the scrubbers and connected by means of two elbows to seal-pot. These double elbows were in the habit of clogging up and caused trouble and it was then decided to put a straight seal-pipe from the bottom of the scrubber directly into the steel seal-pot which let into the foundation.

This method worked very satisfactorily, and overcame all of the previous objections, but on one job it became necessary to install very deep foundations for a battery of six secondary scrubbers.

An 18-in. pancake was poured on the bedrock and 18-in. walls were formed in the shape of a hexagon to the desired height. The interior was then filled with loose earth from the excavation securely tamped, and an 18-in. pancake topping the foundation. Into the form on the side on which it was desired to locate the seal-pot, was inserted a cylindrical core, and the cylindrical outer form dividing this portion of the 18-in. wall into a seal-pot with walls 12-in. thick.



LIGHTER WALLS WOULD SERVE ON SHALLOW SOLID FOUNDATIONS

If this method were to be used on shallow solid foundations very much lighter walls would of course be used for the seal-pot, but in this particular case the sides of the seal-pot took the same relative proportion to the scrubber load as any other side.

The rectangular opening appearing in the sides of the foundation were left for lowering screws, the scrubber for this foundation being moved from another location.

The accompanying photographs are views of the seal-pot from several angles.

The Coke Price

The action of the Attleboro Gas Light Company in deciding to keep coke prices unchanged despite the coal famine and to arrange the distribution so as to benefit the small consumer as largely as possible should not go unnoticed. It represents a commendable viewpoint by the company and wins them public approval that will manifest in a better spirit of co-operation. What they lose in money profit is invested so that it will bring even greater returns in community respect and good will. The company shows a real interest in Attleboro that will not be forgotten.

Additional Rim Enables Service Car to Get Through Mud

A simple expedient suggested by A. E. Wishan to the "Wrinkles" department of the Pacific Coast Gas Association, of which F. S. Wade is editor, could be used to advantage by many gas companies for light service cars.

The accompanying photograph shows the device which proved a life saver during last winter's floods in the West Side Oil Fields. It is nothing more than an additional rim bolted to each wheel on a Ford Car. The connection is made by small angle irons on each spoke. The tire on the outside rim is one size under that on the main wheel. When the car is travelling on hard road, the load is carried as usual on the main tire, but when it hits mud, a great amount of bearing and traction surface is added, enabling the car to pull through heavy mud with comparative ease.

REGULAR RIM CARRIES LOAD ON FIRM GROUND

Adoption of Proper Heat Unit Standard Improves Strategic Position Gas Holds in Illuminating Field

Walter R. Addicks Discusses Gas Standards—Gas Mantle Will Always Insure to Gas Companies a Large Share of Illuminating Business—Introduction of Automobile in 1891 Revolutionized Water Gas Industry

At no time in the history of the gas industry has the business future of this important public service commodity seemed so bright as now.

The most important requirement for good gas service is uniform quality. This is becoming possible through the introduction of the heat unit standard for gas quality, asserted Walter R. Addicks, first vice-president of the Consolidated Gas Company of New York, in a paper presented before the New York sections of the American Electrochemical Society and the Illuminating Engineering Society in joint session at New York City, Nov. 9.

Taking as a basis gas made by the carbonization of bituminous coal; that is coal gas, we have available two diluents: First, water gas, having about 325 heat units per cu. ft.; and, second, oil gas with about 1,200 heat units per cu. ft. With these two sources available for equalizers, coal gas, whether made by the coke oven process or by the retort process—either horizontal, inclined or vertical systems—may be successfully controlled in spite of the tremendous variations in demand due to atmospheric and seasonal causes, as well as because of the range of sales due to occupational conditions on Sundays, weekdays and holidays.

In large companies the variation in output from day to day may frequently reach ten million cu. ft. or an amount equal to the maximum daily demand of a city of several hundred thousand inhabitants; as, for instance, the city of Boston, excluding its suburbs.

Constant Pressure Next Most Important Requirement

The next most important requirement for good gas service is constant pressure.

This does not necessitate uniform pressure in all areas. It is only necessary that the changes in pressure in any one locality shall not have too wide a range; the amount of pressure at any point not being the essential element.

Here again a heat unit standard for quality is of great service, for high pressure mains may be introduced, where desirable, that will effect this pressure equalization without material deterioration in heat unit gas quality.

In suburban communities high pressure is now common in the house services of the distribution system. House governors reduce the initial pressure to any required point and escape pipes are installed to provide for any derangement of the governor.

A high pressure system is impossible under a candle power requirement for quality.

In addition to standards for gas quality and pressure of distribution, we have standards for purity relating to sulphuretted hydrogen, fixed sulphur compounds and ammonia, and standards for accuracy in metered service.

Epoch Making Developments in Industry

It is not proposed to go into any historical outline of the progress of the gas industry or to trace the successive regulatory requirements for gas distribution, but it is appropriate to cite some inventions during the past 100 years or more that have rendered possible the present prosperous conditions in the gas industry.

Among these are the hydraulic seal, the steam boiler and engine, the gas exhauster, the gas holder (formerly known as the gasometer), the gas meter, the photometer, the gas cooking range, the internal combustion engine, the many types of industrial appliances, the fireclay retort, which displaced the cast-iron retort thus enabling the manufacturer to increase the gas yields from coal, and, later highly refractory silicate materials for both retorts and settings, which permits still further increase in gas yields per pound of coal, apparatus for gas analysis, readily operated by those other than chemists, the calorimeter, and surface combustion.

There have appeared from time to time epoch making influences in the history of the gas industry since Murdock introduced gas for lighting. Some have been apparent at the time while others are appreciated only after a lapse of years during which their influence has been at work.

The introduction of cast-iron pipe about 1808 for distribution purposes greatly aided in making the gas industry permanently successful. Cast iron mains seldom require renewal except because of obsolescence due to existing mains being too small for the demands of modern industry.

The use of regenerative methods of heating gas retorts by Siemans about 1862 resulted in a material advance in manufacturing methods.

The successful carburization of blue water gas by Professor Lowe and his contemporaries not only increased the use of gas because of low cost while oil was cheap, but made it possible to commercially meet the varying demands from day to day with plant costing less per unit capacity and capable of operation to full capacity at an hour's notice with but a fraction of the idle labor coal gas manufacture then required, notwithstanding the aid of large holder capacity.

The introduction of electric lighting about 1882, which at first frightened gas investors, later stimulated the gas manufacturer to make marked improvements in processes and methods of manufacture and utilization.

The introduction of the gas mantle burner about 1887, which saved the day for the gas companies by enabling them to hold their lighting business against electric competition while they were building up power and heating business, which more than offset their later losses in lighting due to the remarkable improvement, in the efficiency of the incandescent electric lamp, developed by the brilliant minds of this new and lusty competitor to the older industry.

The importance of the introduction of wrought iron gas mains, intended for high pressure gas distribution, by Flannery in 1889, was not at once grasped. Later steel pipes with screw or welded joints were adopted for pressures up to 100 lb. per square inch. Many communities now have a gas supply through this instrumentality which otherwise would never have had gas, for it is not possible to supply high pressure gas under a candle power standard.

Introduction of Automobile Marked Epoch in Water Gas Manufacture

The introduction of the automobile in 1891, where an internal combustion engine used gasoline for power, revolutionized the water gas industry. All water gas plants habitually used gasolene and naphtha for enriching. These were entirely withdrawn from the market for this purpose, resulting in the abandonment of some gas plants that prior to this time were justly celebrated for the gas produced.

Fortunately the Lowe type of water gas apparatus successfully utilized a lower gravity petroleum, later known as gas oil, and this branch of the industry survived the crisis.

Contemplation of this condition impels me to remark that this generation is using for its pleasures the necessities of future generations. It is to be hoped that the future generations may offset this serious condition by new inventions that will neutralize our prodigality.

Introduction of By-Product Ovens

The introduction in this country of by-product coke ovens in 1879 to 1893 has resulted in what may properly be styled by-product gas. In this coke process five to twelve or more tons of coal are heated with gas in an oven for 18 to 24 hours; whereas in gas manufacture but 1,000 lb. of coal is heated with coke in a gas retort for periods ranging from four to six hours.

Probably in the future, producers using coke will supply the heat for coke ovens, in which case all the gas from the coal will be saved for other industrial uses in place of but 40 to 60 per cent as at present.

As the success of the coke oven depends upon a uniform demand for coke in very large quantities, the gas, tar and ammonia are by-products.

Coke ovens are not used by the gas manufacturer, for with him gas must be the chief product, and coke, tar and ammonia by-products.

Some gas companies purchase by-product gas for their general distribution, but they are compelled to maintain water gas plants in order to immediately supply the gas demand when the coke oven plants are compelled to decrease their output because of dull coke markets, or other reasons, climatic or commercial.

Universality of Heat Unit Standard

Continental Europe and Great Britain now have the heat unit standard for gas quality, and, in the year 1915, the Dominion of Canada adopted substantially Great Britain's standard.

New Hampshire, New York (Second District, after Jan. 1, 1917), Connecticut, Pennsylvania, New Jersey, Maryland and the District of Columbia, and many other states of the Union are now using heat unit standards for quality.

At the last Annual Meeting of the American Gas Institute the following resolutions were adopted:

> "RESOLVED, that the total heating value in manufactured gas best represents its quality for standard requirements; and
>
> "FURTHER RESOLVED, that the American Gas Institute recommends the adoption of the total heating value as the only standard basis of rating the quality of all manufactured gas distributed in the United States."

The Institute further adopted the following:

> "Experience has demonstrated that in establishing any definite calorific standard for gas, the following are conditions that govern:
>
> 'In any calendar month gas should on the average at least meet the standard fixed.
>
> 'Except in case of accident or other incident of manufacture reasonably beyond control, the average of any day's determinations should not fall below the standard fixed by more than 10 per cent.
>
> 'Where gas is compressed the heating value shall be determined before compression.
>
> 'Gas should not be required to contain such percentages of constituents as to render the gas unstable under varying conditions of atmospheric temperatures and pressures.
>
> 'The standard adopted should not unnecessarily restrict the use of materials or processes to the detriment of economical manufacture or prevent the conservation of natural resources.
>
> 'Materials and processes may be used whose by-products of manufacture are of military value to the Government.'"

In the future, gas standards will undoubtedly provide for a total heating value, the absence of sulphuretted hydrogen and a limitation in distribution pressure variations at the meter. All fixed sulphur, ammonia, maximum and minimum distribution pressures and candle power limitations will be abandoned as obsolete in modern conditions.

Strategic Position of Gas Industry in Illuminating Field Improved

The adoption of a proper heat unit standard improves measurably the strategic position gas holds in the illuminating field.

Distant control of the electric lamp has been the most important influence that has aided electricity to take the lead of gas in general illumination. Through the adoption of a heat unit standard that no longer requires that gas contain constituents that tend to produce the deposition of carbon when burning will permit pilot lights and gas mantles, as well as water heaters and domestic utensils, to become more efficient due to greater ease in permanent regulation of gas combustion and a uniform cleanly condition, not depreciated by carbon deposit that climatic temperature changes surely bring about when the manufacturer is endeavoring to follow a candle power standard. Candle power standard gas, subject to severe atmospheric conditions, may lose in effectiveness 30 per cent where a heat unit standard gas may not vary 2 per cent.

Gas Engines for Generating Electricity

Where there is a gas supply and no central station electric service is available, it will be found very much easier and cheaper than formerly to obtain electric illumination through the use of the gas engine and electric generator.

The gas engine is now a comparatively simple piece of machinery to a large number of persons, including many women and young men, because of their familiarity with automobile engines.

The modern electric lamp of 50 candle power now requires but 50 watts of electric energy whereas not many years ago it required four times that energy.

A 5-brake horse power gas engine will now produce power for nearly 70 such lamps. Formerly a 20-hp. engine would have been required.

The capital required for the installation and the difference in the yearly charges for gas, water, interest, depreciation and repairs of a 5-hp. engine when compared with a 20-hp. engine is very considerable.

When using a 5-hp. engine no additional gas service would be required from the gas supply mains, where the premises are already supplied with gas service. Should further improvement be made in electric lamp efficiencies, then more lamps, and hence a larger establishment, could be maintained with the same gas engine equipment.

Future Lighting Business

The gas mantle will always insure to the gas companies a large share of the illuminating business. As candles still continue to be used so flat flame burners will doubtless be used in cellars and furnace rooms. Gas can be depended upon without the mantle burner for light sufficient for such purposes, but the use of the flat flame burner for illuminating purposes with any gas is wasteful in the extreme.

Great advance has been made in the adaptability of the mantle burner to the multitude of conditions that an illuminating burner must fulfill in these days. As gas pressures increase, the efficiency and general adaptability of the mantle burner will increase. As an illustration I would recall to your mind the beautiful high pressure lighting at the World's Fair in San Francisco in 1915.

It is most fortunate that the commercial conditions that make a heat unit value for gas quality imperative should at the same time improve and simplify all problems of distribution, and, likewise, that any increase in distribution pressures should under such a standard improve efficiency in the utilization of gas.

These influences will doubtless be felt most beneficially in gas illumination through the use of the gas mantle.

Gas Supersedes Kerosene for Block Signal Lamps

A crew of men from the signal department of the Boston & Maine Railroad are replacing the kerosene lamps in the block signals, on the main line between South Ashburnham and Pownal, Vt., with convenient and more efficient gas lamps.

For some time gas lights have been used for the signal system on the Cheshire branch of the Boston & Maine and have been found so much more practical than the old kerosene lights that the Fitchburg division is now being equipped. It has been authoritatively stated that in all probability the entire Boston & Maine system will use gas lamps for the blocks as soon as proper arrangements can be made.

These new lamps use acetylene gas which is generated in large tanks at the foot of each signal. They are kept burning constantly for about three months and then the tanks are replaced with new ones.

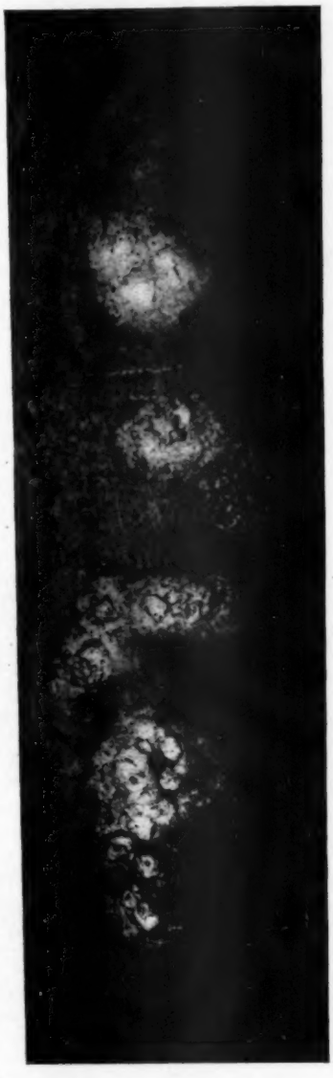
Industrial Gas Reduces Bread Cost

The recent convention of bakers would do well to study the work done in Denver as regards reducing the cost of bread making. These bakers have claimed that it costs them 15 cents per hundred loaves for fuel, where as in Denver one bakery is turning out 100 ten cent loaves with gas as fuel for a fuel cost ranging between 8 and 9 cents.

25 Per Cent More Gas Sold in 1915 Than In Last Record Year

Coal Gas Shows 24 Per Cent in Quantity and By-Product Oven Gas 55 Per Cent—Quantity of Water Gas Sold Almost Equal to Combined Quantity of Both

The use of artificial gas as a domestic and industrial fuel is increasing at a rapid rate. In households gas is replacing coal for cooking and to some extent for heating, and in the industries gas—mainly that from by-product coke ovens—is now used for raising steam and firing open-hearth steel furnaces. The advantages of gas as a fuel, not the least of which are its cleanliness and its ease of control, are well known, states the U. S. Geological Survey, and it is being supplied to many small cities and towns by pipe lines from the larger cities where it is made. The use of artificial gas for illuminating, however, is decreasing, mainly because of competition by electricity.



SECTION OF RECLAIMED PIPE—SPOTS SHOW FILLINGS

The artificial gas—oil and water gas and coal gas from retorts and by-product coke ovens—marketed and sold in 1915 amounted to 266,204,248,000 cu. ft., valued at $173,832,132, according to statistics collected by C. E. Lesher. These figures show an increase of 25 per cent in quantity and 17 per cent in value compared with 1912, the next preceding year for which the statistics of this industry were collected by the Geological Survey.

Great Increase in By-Product Oven Gas

The quantity of gas from coal-gas plants in 1915 was 43,747,432,000 cu. ft., valued at $40,257,108, an increase of 24 per cent in quantity and 25 per cent in value as compared with 1912. The quantity of surplus gas sold or used from by-product coke ovens in 1915 was 84,355,914,000 cu. ft., valued at $8,624,899, an increase of 55 per cent in quantity and 84 per cent in value.

The average value of the coal gas in 1915 was 92 cents per 1,000 cu. ft., and that of gas from by-product coke ovens was 10 cents, the difference being due to the fact that the value given for coal gas includes the cost of distribution to domestic consumers, whereas the value for coke gas is reported at the place of production. The aggregate output of coal gas in 1915 was 128,103,346,000 cu. ft., valued at $48,882,007, an increase, compared with 1912, of 43 per cent in quantity and 33 per cent in value.

Water gas enriched with oil—carburetted water gas—is more generally used in cities than coal gas. The quantity of water gas manufactured and sold in 1915 was 124,129,569,000 cu. ft.—nearly as much as the combined output of coal gas from retorts and coke ovens—and was about 47 per cent of the total quantity of artificial gas sold.

Oil-Gas Output Increases 13 Per Cent

In California, Arizona, and Oregon nearly all the artificial gas produced is made from oil, and in some other States there are oil-gas plants. The quantity of oil gas manufactured and sold in the United States in 1915 was 13,971,333,000 cu. ft. The aggregate of oil and water gas sold in 1915 was 138,100,902,000 cu. ft., valued at $124,950,125, an increase, compared with 1912, of 13 per cent in quantity and 12 per cent in value. The average value of oil and water gas in 1915 was 90 cents per 1,000 cu. ft., compared with 92 cents for coal gas from retorts.

It was not possible to obtain complete figures showing the sale of artificial gas for various uses, for the reason that in many cities the gas used for illuminating and that used for fuel is not metered separately. The statistics collected by the Geological Survey for 1912 showed that 47 per cent of the artificial gas sold was used for illuminating, and the statistics for 1915 show that 30 per cent of the gas sold was used for illuminating, 48 per cent for domestic fuel, and 22 per cent for industrial fuel.

Utilities Not Over-Capitilized

Never mind what may be the conditions of the utility you have charge of in your local community, if you will take a broad, general view of the subject, and if you will go to the figures, not prepared by any prejudiced authority, not prepared by anyone who has a brief from the public utilities, but prepared by the government officials of the United States in their Census reports, you will find that the great public-utility businesses of this country, as a whole, are not over-capitalized; that the assets exceed, if a valuation is fairly made, the capitalization. Instead of apologizing to those who criticize and decry our economic situation, you will find that, as a rule, as these statements are usually offered, unsupported by data, we can give them the lie and tell them that we can back up by government figures the exact contrary of the position they take.—*Extract from a recent address by Samuel Insull.*

N. Y. Consolidated Gas Company Signs Long Lease

Papers were recently signed consumating a lease covering a long term of years for a plot at 222-228 West 65th Street. The plot is to be improved by a four-story garage, to be completed by February, 1917. An aggregate rental of $200,000 is involved.

Old Pipe Reclaimed by Oxy-Acetylene Welding

Hundreds of Lengths Removed from Ground were Considered Scrap Until Idea of Filling in Pits and Scars was Put Into Effect—Resulting Product Considered as Good as New for Use in Pure Soil

Given up almost as a total loss hundreds of lengths of steel pipe were stacked up in the yard of the East Ohio Gas Company at Cleveland waiting for the junk man. The pipe has already given service in the distribution system and had become pitted and scarred to the point where their removal was necessary.

Then some one hit upon the idea of reclaiming them. The pipes were cleaned and a welder was put at work.

The pits and scars in the pipe are now being filled and reinforced by the welders with new steel and it will be "good as new" for sections where the soil is pure.

"PIPE DENTIST" AT WORK FILLING IN CAVITIES IN STEEL PIPE

Adequate Piping of Buildings Most Important Feature in Promoting Utilization of Gas

W. T. Rasch Describes Work of Consolidated Gas Company of New York to Impress Upon Architects the Wisdom of Providing Such Piping During Construction—If Matter is Properly Presented It is But Seldom that Desired Result is Not Obtained

The adequate piping of buildings is the first and most important feature to be considered in promoting the utilization of gas, and of devising means and agencies for increasing its consumption. It is a subject the importance of which cannot be over estimated, and strange to say, one which has received insufficient attention from the gas industry at large.

The gas industry has, in the past, spent a great deal of time and money in perfecting appliances and devising new uses for gas. Also, a great deal of time and thought has been given to its manufacturing problems, but to what avail is any of this very valuable work if, in the end, it is found that buildings are not being adequately piped for gas, due to our lack of foresight in not aggressively emphasizing the importance of this work to the building interests? How are we to increase the sale of our product if buildings are not properly and adequately piped for gas? We can go on perfecting appliances, seeking new and hitherto undiscovered uses for gas and designing and testing appliances to meet their requirements, but in the end, our time, energy and money will have been only of partial value to us, unless our energies are also directed to securing the complete and adequate piping of all buildings for gas at the time of their erection.

It is a subject of major importance, and it is indeed surprising that although the gas industry has been in existence in the United States just one hundred years, the necessity of actively taking up one of its most important subjects is only now being understood and agitated. Probably, this is largely due to the fact that in the larger cities in which gas lighting was used extensively, it was the common rule to pipe all buildings for gas, another method of illumination has come into general practice. With the development of the new industry, gas lighting has come to be considered of secondary importance, and the omission of gas piping in buildings the natural consequence.

The gas industry, with the knowledge that all buildings erected in the past have been equipped for gas, seems to have been imbued with confidence that all buildings erected in the future would be. The possibility of gas piping being considered unnecessary in structures has been furthermost from our thoughts.

The fact remains that our supreme confidence in the superiority of our product is not being shared to-day by the architects and the building interests—not that gas for fuel and lighting has been superseded by a superior, more economical and more efficient fuel and light, but rather because the newer method has been the more actively exploited, and our competitors have reaped the natural reward of aggressive effort. It is our duty now to set aside this confidence and to demonstrate finally and conclusively that gas for light, heat and power has certain pre-eminent characteristics, and that to deprive a building of such pre-eminence by the omission of gas piping, means the curtailing of its producing or renting value.

The situation which confronts gas companies in the larger cities is simply this—the architects and building interests have been permitted to reach the conclusion that the leasing public demands electric service in all buildings for lighting, and that gas service for this purpose has become antiquated.

This conclusion has not been arrived at from any study of the relative merits of the different illuminants as they are to-day, nor from any economical or hygienic point of view. The conclusion, however, is deep seated, and the natural result is that neither the architects nor building interests consider it necessary to pipe a building for gas, except for the cooking demand.

The question of gas service for fuel purposes and the necessity of piping all mercantile buildings to secure this service is not well understood either by architects or the building interests—principally because no concerted effort has been made by the gas industry to direct their attention to this important and necessary equipment for buildings designed for loft or manufacturing purposes. A concerted effort should be made by all members of the gas industry to bring the matter to the attention of all who either design or erect buildings.

These assertions were made by W. T. Rasch in his paper on "Adequate Piping for Buildings," presented at the annual meeting of the National Commercial Gas Association, held last week in Atlantic City. The following has been abstracted from Mr. Rasch's paper:

Work of the Consolidated Company of New York

The Consolidated Gas Company of New York some three years ago realized the necessity of undertaking this work, and organized a department called the Architectural Service Bureau, whose duty was to call upon architects and urge upon them the necessity of adequately piping all buildings for light and fuel purposes. About two years ago this bureau was made part of the Department of Utilization under the personal direction of its engineer, and since then its scope has extended sufficiently to make us feel that we are justified in calling it a real service bureau.

It must be borne in mind that when a new building is projected, the architect is overrun by salesmen and representatives of every description, as well as by all sorts of advertising literature, and it is but natural that they come to the point where little attention is paid to this sort of activity.

We have been successful in approaching them along somewhat different lines. We endeavor to convey the idea that we are there to give service and to render all the assistance we can in planning piping layouts, arranging for the location and installation of meters, sleeves and services, etc., of the proper size, and for their installation at the time desired; as well as advocating the installation of adequate risers and branch lines, with suitable outlets, suggesting uses for gas that may come up, even if not originally anticipated, and which should be provided for, and referring commercial prospects to the sales department, and so on. In short, we are giving all the assistance possible in every matter pertaining to the gas supply, and the fact that we are working thus on service lines has resulted in very satisfactory contact with architects and builders and brought about desirable relations. We are being more successful in securing the installation of proper gas piping systems, and, I believe it is largely because of the fact that the architect does not look upon us in the same light that he regards trade salesmen and representatives of supply firms and the like.

Deal with New Buildings Before Construction Has Started

We believe it to be desirable to have the new building inspectors in the various shops kept in close touch with the work of our bureau. We deal with new buildings at a time when they exist only on paper and before the actual work of construction has begun.

On the other hand, the new building inspectors of the fitting department are in contact with the building work during the period of actual construction, and they can be of much help in seeing that the piping originally agreed upon is actually installed and in keeping the bureau informed of any change or omission, so that we are then in a position to reopen the question with the architects before the building is completed.

There have been cases in the past where, after much hard work, we have persuaded the architects to include a complete gas piping system in their plans, only to find that when the building was completed the gas piping had been curtailed, or in some instances left out altogether. This has frequently been due to the owner's pruning down in order to economize as much as possible, and sometimes it is done without the architect's knowing anything about it. Our present system gives us a method of checking up cases of this sort.

The working plan of our bureau may be briefly described as follows:

We receive each morning by mail, the F. W. Dodge Company's reports on building projects. These are numbered, filed and indexed under their respective locations, and from them our own

record slips are prepared. This slip serves as a record of our work with the architect until the matter is disposed of. It is checked up by an office record, which gives the number of each report taken out each morning, any details that may have developed as the result of our call upon the architect, and the date upon which a subsequent call is to be made. A tickler system covers reports filed for future calls.

The work of the representatives is planned each day from the tickler, as well as from the new reports received each morning. When the case has been completed, the reports are stamped "Final," and where any commercial prospect has been disclosed, a "Prospect Slip" is forwarded to the Commercial Department.

A special form is used for transmitting to other departments, requests for street connections, service locations, meter installations, etc. With respect to the latter form, I would say that close co-operation and prompt attention by the department to which these special requests are made is essential. Failure to give them prompt attention will, undoubtedly, be resented by the architect and discredit the representative when future calls are made. On the other hand, prompt co-operation in taking up these matters is much appreciated by the architects, and we hear comment to that effect frequently made by them.

Department Kept Advised During Construction

When we succeed in persuading the architect to install the piping, the detailed information regarding the number and size of riser lines, outlets, etc., is noted upon the form prepared for the purpose and forwarded to the meter department. This is turned over to the inspector in whose district the proposed building is. This serves to advise him of what gas piping has actually been agreed upon and if, during the construction of the building, he finds any departure from the details as given on the form, this information is noted upon the detachable slip, which is returned to us, and we are thus enabled to reopen the question with the architect, ascertain the reason for the change and renew our efforts to secure the installation of the proper piping.

With this system of co-operation in force, the Architectural Service Bureau is kept advised of what is actually being done during the period of construction, and upon the completion of the job there is available an accurate record of what was actually installed.

The arguments which the architectural representative must advance in order to persuade the architects to include adequate gas piping systems in their plans are necessarily many and varied.

If the representative finds that gas piping is to be installed, then the sufficiency of the proposed size of the riser is considered, and if deemed insufficient to render satisfactory service, the matter is brought to the architect's attention and he is instructed what the proper size should be.

The question of the location, number of and sizes of outlets is also brought to his attention, and usually the gas layout thus determined upon is adopted by the architect, and he is grateful for the gratuitous and voluntary service thus rendered.

If upon inquiry it is found that no gas piping is to be installed in the building because the owner desires electric lighting service, and considers gas piping an unnecessary expense, then only after every argument has been exhausted, the architect is urged to pipe the building for gas fuel service and also for an auxiliary lighting service. If a loft or a manufacturing structure is considered, his attention is directed to the question of the absolute necessity of providing a fuel service—that few indeed are the lessees who do not require gas fuel in their industry, and that piping a structure for gas to supply such a service is an absolute necessity. To deny service to any loft building restricts its rental opportunity to only those industries who use no fuel for any purpose, and such industries constitute an exceedingly small part of the business world. His attention is also directed to the fact that the omission of gas piping prevents the building when completed, no matter how desirable the location or how imposing the structure may be, or how adequate the equipment may otherwise be, from competing for desirable tenants with structures adequately equipped for such service.

Small Cost of Piping During Construction Emphasized

In dealing with the architects, the small cost of piping the building during construction is emphasized. This cost varies from 0.128 per cent to 0.65 per cent of the total cost of the structure for a loft building, with its small number of outlets to the most elaborate piping of a modern office building. This is comparatively negligible, and the architect's attention is directed to the trouble, inconvenience and great expense the owner would be put to if he was compelled to pipe a building after completion, in order to secure a desirable tenant whose industry requires a gas fuel service.

Concrete examples are brought to his attention of structures erected without gas service, where architects and owners have been pleaded with and urged to pipe the buildings during construction without avail, only later to acknowledge their lack of foresight and false idea of economy, by being compelled to install gas piping at a great additional cost, so as to be able to compete with other loft structures that have been so equipped. Cases are cited where structures even though designed for a specific purpose which in its operation did not require a gas service, had to be piped to meet the demand caused by a change in the character of the occupancy requiring gas service. He is strongly urged, as a general proposition, to have all buildings piped for gas, with outlets capped if there be no immediate need for gas service and, by anticipating the needs of the future, place the building in the class known as thoroughly equipped and efficient units for industrial use.

Seldom, if Matter is Properly Placed Before Architect, that Desired Result is Not Obtained

It is seldom indeed, if the matter is properly placed before the architect, that the desired result is not obtained, but if, after all arguments and urging he has failed to be convinced of the necessity of piping a particular structure, you may rest assured that the structure will sooner or later be one of the concrete examples to quote to other architects of an owner's lack of foresight and erroneous conception of economy.

The men selected for the Architectural Service Bureau should have particular training for the work. They should be tactful, of pleasing address, familiar with piping schedules, possess some general knowledge of the building industry, have some personal acquaintance with architects, and be capable of winning their confidence and establishing friendly relations for the company.

They should impress architects with the fact that the Bureau has been established solely for the purpose of being of assistance to them, a bureau to which they can have recourse when desiring information regarding gas, gas piping or gas appliances and feel assured that the information thus obtained can be relied upon as founded upon the best practice of the day.

Above all, the members of the Architectural Service Bureau should possess both patience and pertinacity. It may be necessary to visit an architect several times before he can be seen, and even after an interview, it may require several calls before his decision can be ascertained and the question finally settled. Once a project has been entered upon, there must be no let up until it is finally settled one way or the other. At times it means calling at the job, visiting the plumber to ascertain the size of risers he contemplates installing, and at times calling the owner's attention to the insufficiency of gas riser lines being installed by plumbers, especially when the architect has only been commissioned to draw up the plans. This activity of the Architectural Service representative is followed by advertising matter, folders and ads in the building trade journals and magazines.

Most Notable Instance of Complete Gas Piping

Perhaps the most notable instance of a complete gas piping system is that which was installed in the Consolidated Gas Company's building. This building is piped throughout, from top to bottom, with both ceiling and floor outlets and provision is made for the use of gas for lighting, cooking, power, heating and every conceivable purpose from the cellar to the roof. This is perhaps the most elaborate piping system ever installed in a modern building, yet its total cost was less than 1 per cent of the total cost of the structure.

I believe that if one-half of the information in the possession of the gas companies, as to the safety, economy and efficiency of their product for lighting, heating and fuel purposes, was in the possession of those who designed and erected building structures, there would be little difficulty in having them adequately pipe all buildings for gas.

War Plays Havoc with Original Gas Contracts in France

Gas Producers Willing to Adhere to Agreed-Upon Rates, But Impotent—Municipalization No Remedy for Balance Sheet Losses—Costs Between $1.58 and $1.88 Per Thousand Cubic Feet to Produce Gas in Paris District

By FRANCIS MILTOUN

Appropos of the government-controlled price of gas in France, which has caused so much recent agitation, it is important to note that at this moment a protest has just been lodged by 14 of the 64 communities served by the *Société d'Eclairage et Force Motrice* (the largest gas operating combination in France) against the augmentation of 4 centimes per metre cube proposed by the company as a modus vivendi whereby it might continue to supply its product. This is a raise of approximately $0.23 per 1,000 cu. ft. in addition to the preconceived rate of 20 centimes, approximately $1.13 per 1,000 cu. ft.

Thus comes to the surface one of the disadvantages of a stiff, supposedly unbreakable franchise where prices are agreed upon between the operating company and the community without taking into consideration the possible market fluctuations of the raw material—the *matière brut* of the French regime. It is not a two-edged sword; it is only one-edged, but the sharp edge is forever towards the company producer and never towards the consumer.

City fathers the world over pride themselves on their ability to see to this, and France is no exception. According to the socialistic theory this is all very well, but it is not always that impossibilities can be converted into possibilities, not even with a maximum of ingenuity, hence—deadlock. If the company stops production it will be a still more serious matter for the public than a rise of $0.23 the thousand.

The difficulty of solving the problem has been laid before the Prefect of the Seine and the Minister of the Interior, for such matters are national in most of the political divisions of Europe, and the decision and line of action adapted may have its repercussion upon the whole country within the next few weeks before the intensive consumption of the autumn and winter months sets in.

Municipal Plants Not Wholly a Success in France

An echo coming from Marseilles should be a warning as to the quarter in which the wind lies. Municipal gas plants have not been wholly a success in France. Owing to the accepted rise in the big Mediterranean seaport there has been a considerable, but in effective, protest. An indignant city councilman demanded the municipalization of the local gas company's works—"that the consumer might benefit from a reduction in rates and that the city treasury might be enriched by the profits from the operation thereof." This is a mere amateur's game. He could hardly have hoped to pull it off had he sprung it before the war, much less even now.

There are 20 municipalized gas plants in France. Of these 3 have reconceded their franchises, and of the 17 remaining 4 have shut down completely because they could not make expenses, one not even at 80 centimes the metre cube (approximately $4.52 the thousand cubic feet), four times the figure which obtains with the admirably conducted and well nigh omnipotent *Société d'Eclairage et Force Motrice* of the Paris district with its 1,600 miles of mains. Finally the other twelve are asking for, and getting, from 35 centimes to 50 centimes the metre cube, approximately $1.98 to $2.82 the 1,000 cu. ft.

As the critics of the *Cannebière*, that gossiping Rialto where all rumors of the region are born, have put it, and it sounds as well and rings as true in English as in French: "This is simply a return to the out-of-date (*demodée*) fashion of municipal socialism." It seems a curious fact, but it is to be taken into consideration nevertheless, that municipal socialism has proved a success in many monarchial countries and just the reverse in democratic nations.

Cost from $1.58 to $1.88 to Make Gas in Paris

It is well to recall here that it has been stated by those in the know in France that gas here costs 28 centimes the cubic metre to manufacture, not taking into consideration the value of the by-products and the normal price of gas coal in the metropolitan, Paris, area. This approaches $1.58 the 1,000 cu. ft., or $1.88 if we take into consideration the present value of the franc as compared with the dollar, and this is not unreasonble since France buys a large part of the gas coal of which it makes use abroad and pays for it in foreign exchange.

It is exactly this matter of foreign origin, supply and transport of the raw material which pulled the strings so tight at Toulon, the neighboring war-port of Marseilles on the Mediterranean, that the municipality begged a transport of the Naval Establishment especially to bring a cargo of coal from England for the local gas company (which is Belgian, by the way, though for no reason except that the French leave many of the public service exploitations of their own country to foreigners and take their own money to the utter ends of the earth and establish similar enterprises in foreign countries) and pawned the water rates to the extent of 415,000 francs to pay for it. From all of which it is to be inferred that the manufacture of coal gas in France is an all-round occupation requiring many talents in order to combat conditions which crop up like blades of grass where seldom looked for.

It is emphatically stated by the French Gas Producers Association that it is not possible for any individual, company or municipality to produce the commodity and sell it for 20 centimes the cubic metre ($1.13 the thousand) under ruling conditions.

Appropos of the Marseilles attitude the Congress of Milan, held last May, brought about an agreement between the municipal gas plants of Italy, whereby they were to purchase coal on a joint co-operative basis, and, if necessary, agreed to establish a price scale every thirty days based on the operating of the last thirty-day period. This may have been deemed purely a war measure or it may not, but it was born of conditions over which the producer, no more than the consumer, had not the slightest control and seems again to prove the strength of the assertion that in the Kingdom of Italy it is possible to achieve that which was not possible in the Republic of France.

Cannot Supply Gas at Agreed-Upon Figure

At all events it may be accepted that the gas crisis throughout Europe is something born of war conditions, and not of the grasping tendencies of directors and stock-holders of private companies nor even of mine-operators, coal-shippers or shipping companies, though it must be admitted that it is the cumulative interests of all these elements which have brought about the last analysis, and the one which perforce has to be accepted whether or no.

As was arrived at at the Bordeaux conference when gas coal rose in price above 28 francs the metric ton (approx. $5.60) gas could no longer be supplied at the agreed-upon figure based upon that cost of raw material. That briefly puts the whole matter in a nutshell and neither a consumers' association nor a municipality—agreement or no agreement—can hold up the producing and supplying company to original estimates if it is a physical impossibility brought about by *Force Majeur*, which is the French equivalent of "Act of God," which plays a ruling part in all contracts. The local courts sent the case, when it was brought before them, back to its original status, and told the municipality and the gas company to find a common point of accord and get down to business. Rather a simple way of settling the question, one thinks! Such is the gas question in its momentary phase in France at this writing.

Year 1916 Has Seen Gas Used for Industrial Purposes to an Extent Never Equalled in Industry's History

Exceptionally Large Installations—Sales of Gas-Fired Steam Boilers—Prosperity of Country Has Resulted in More Liberal Attitude on Part of Consumers in Matter of Purchase and Use of Gas Fuel Appliances

The year 1916 has seen gas used for industrial purposes to an extent never equalled in its history, states the report of the 1916 Industrial Fuel Committee of the National Commercial Gas Association, of which C. E. Chapple is chairman, presented at the annual convention of the association held last week in Atlantic City.

Especially Large Installations

In Syracuse japanning ovens have been installed in the plant of the Franklin Automobile Company, which consume approximately 800,000 cu. ft. of gas per month. These have been so satisfactory in their operation that the outfit is now being duplicated. It was found in this instance that by the use of indirect gas heated japanning ovens the output per square foot of floor space was materially increased and the finish of the automobile bodies bettered.

In Chicago an indirect gas heated japanning oven 50 ft. long has been installed in the plant of the Seng Company, which will consume approximately 750,000 cu. ft. of gas per month. While these two are perhaps the largest gas heated japanning installations in the country, many ovens of 500 cu. ft. heating space and over have been installed throughout the country.

In Eddystone, Pa., the Eddystone Munition Corporation have installed what are probably the largest gas heated annealing and hardening furnaces in the country. (See American Gas Light Journal, August 21, page 113.) It is estimated that they will consume a total of 230,000 cu. ft. of gas per day.

Newark reports the securing of a hardening and tempering installation, calling for the use of appliances of the retort type, which they expect will call for an average consumption of 350,000 cu. ft. of gas per month. In addition, in this same plant, they expect to install furnaces for hot rolling steel, which will call for an additional consumption of 250,000 cu. ft. of gas per month. These are average figures which will be greatly increased during the periods when business conditions are abnormal. Oil and coal have been used in this plant for more than 25 years. The business was secured with gas at 75 cents against oil at 5¼ cents and coal at $6.75 per gross ton. The use of gas was warranted upon consideration of total cost as by its use more efficient heat application could be made, resulting in lower fuel costs. Labor in handling material was greatly reduced with gas, making the net saving in favor of gas of $3.00 per ton of material treated.

In Brooklyn there is being completed in connection with oxygen for cutting steel, an installation at one of the largest dry dock companies, of a high pressure gas system which will enable the company to operate 100 steel cutting torches at a time, if desired. Provisions have been made to double this equipment in the future. Each torch will consume 50 cu. ft. of gas per hour, and basing our figures on the amount of blau-gas hitherto used for this purpose, an annual gas consumption of 2,500,000 cu. ft. is expected.

This installation was secured after conducting most exhaustive tests in comparison with other gases. This installation also was the means of introducing gas for other heating operations, such as brazing, pipe bending, rivet heating, etc., which should make the total gas consumption very attractive.

Largest Hotel Installation in Country

New York reports securing a complete kitchen equipment for the Waldorf-Astoria Hotel. This will be an installation of all-hot-top gas ranges, broilers, etc., and will in all probability be the largest gas hotel installation in the country.

The establishment of the dye industry in the United States has resulted in the extensive use of gas for dye making. Many of the operations of boiling acids, etc., in connection with dye making call for accurate temperature control and the possibility of immediately extinguishing the heating medium. No other fuel adapts itself to this work so well as gas.

Success Induces Competition

Nearly all gas companies have experienced a remarkable sale of gas fired steam boilers, and what is of great importance is that boilers of 10, 12 and even 15 and 20 horsepower, have been installed this year. It is safe to say that the average horsepower sold this year by the larger companies will be between 4 and 5 horsepower, as against approximately 2 horsepower, in years past. It means much to the gas companies in securing future business to be able to refer to these large installations.

The cases cited have been selected at random and are merely indicative of the general nature of the gas business along industrial lines secured throughout the country during the year.

Simplicity of control and sureness of the correct proportioning of air and gas—particularly in high temperature appliances—has long been desired. This has been recognized by engineers and manufacturers, and to-day both air blast and high pressure gas appliances are being placed on the market by several manufacturers. Both types permit the control of fuel by the simple operation of opening or closing a valve or cock. Such systems lend themselves particularly to automatic heat control.

The prosperity of the country at large has resulted in a more liberal attitude on the part of consumers in the matter of purchase and use of gas fuel appliances. This has meant opportunities to demonstrate commercially the economies possible with the correct usage of gas for many purposes hitherto untouched.

All of this is cumulative. The more installations of industrial appliances made and the more gas used for fuel purposes, the easier is the sale of additional gas and appliances.

Success in any business induces competition and the gas fuel business is no exception. During the year marked activities have been noted on the part of central station electric companies in an endeavor to break into the industrial heating field. Electric ranges have been offered for hotel and restaurant work, and in some few cases sold.

Automatic Gas Regulators Installed to Considerable Extent

Automatic gas regulators for temperature control for both low temperature and high temperature gas appliances, have been installed to a very considerable extent during the year. It has been proven conclusively that gas-heated appliances may be controlled with a precision and nicety, equal, if not superior, to the control of any other form of energy, not excepting electricity, and by these devices manufacturers of products throughout the country have been able to turn out work of precision, and have been enabled to eliminate spoilage of product by underheating or overheating, and to do so with a gain of fuel economy and a saving in labor.

Appliance manufacturers have been active this year in increasing the efficiency of industrial appliances. Many manufacturers new to the field have been offering appliances embodying new ideas and new applications. The merits of these devices will be ascertained quickly and, if satisfactory, their sale will be assisted by the industry at large.

Particular attention has been paid to utilizing more effectively heat generated in converting convected heat to radiant energy and directing it on the work being treated. As a result it has been possible to develop higher temperatures than heretofore and to reduce flue losses to new minimums and so materially increase thermal efficiencies.

AMERICAN GAS LIGHT JOURNAL

FIFTY-EIGHTH YEAR.

Published Weekly by
AMERICAN GAS LIGHT JOURNAL, INC.
42 Pine Street, New York, N. Y.

ELBERT P. CALLENDER, President
STANTON G. KRAKE, Vice-President
FREDERICK A. SOUTHWORTH, Secy.-Treas.

EUGENE C. MILES, Editor

Subscription, $3.00 per year, including postage in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines.
In Canada, $4.00. Foreign, $5.00.

Entered at the Post Office, New York City, as Second Class Matter.

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Price Maintenance

George H. Hull in a book entitled "Industrial Depressions" shows that depressions are caused by high prices and booms by low prices. He leaves one to infer that if it were possible to maintain prices at a constant level there would be good times always. There would be little variation in business conditions, but progress on the whole would be more rapid than it is under present conditions.

A very successful business man, one whose experience has proved to him the value of the one price theory, is Eldridge Reeves Johnson, president of the Victor Talking Machine Company. In a recent article in Printers' Ink he mentions the automobile business as a good business in which to study the effect of price maintenance. His conclusions are as follows:

"No reasonable complaint can be made either in the price of automobiles, the wages paid or working conditions in automobile factories. The public gets the automobile that it is willing or able to pay for. Some are high-priced and some are astonishingly low priced. Most of them are worth all that is charged and are astonishingly efficient.

"The fact is that the general condition of the automobile business from the standpoint of public worthiness is decidedly better as a whole than any other line, and this fact would seem to be an unanswerable argument against the theory that a price which is maintained to a standard fixed by the manufacturer has the effect of maintaining prices unduly high."

The gas business is another business where prices have been maintained. Not only is all gas in many cities sold at a fixed price, but this price may be fixed by agreement with the Government. In these days of high prices, the gas rate is one of the very few items entering into the cost of living which shows a decrease rather than an increase. While most other household necessities are reaching a price level that has not been exceeded since the Civil War the gas rate compared to the gas rates of those days is surprisingly low. It would seem that a fixed retail price for the sale of gas has been not only beneficial to the gas companies, but it has also been of immense benefit to the public. It is very easy to imagine how much smaller the gas industry would be to-day and how much less substantial it would have been had the gas rate fluctuated from month to month as the cost of raw material increased or decreased. People have become so accustomed to a fixed price for gas that they would very strenuously object to having its cost fluctuate the way that the cost of coal and of oil fluctuate.

Price maintenance has proven so beneficial in the sale of gas that it would seem advisable to investigate the possibilities of applying the fixed price method to the sale of appliances as well. At the present time there is a wide variation in the retail prices and the selling methods of different gas companies. While one gas company may sell a range costing $12.00 at the factory at a price as low as $10.00, completely installed, another company may charge $25.00 for the same range. The floating population of this country is great enough to be a considerable factor in determining the success or failure of any selling system. It makes no difference where one has inquired the price of a Victor Phonograph, if it is a hundred dollar machine that has appealed, all one has to do is to ask to see a hundred dollar Victor machine in any other store or in any other city, and he will be shown exactly the same machine. Not so, however, with gas ranges. Some companies sell them below cost and some above. Some suffer a very decided loss while others make some profit. The state of affairs in the appliance end of the business is diametrically opposite that of the sale of gas itself. Not only do the prices vary in different communities, but they are also likely to be changed a few times during the course of each year.

Since the fixed-price method has proven so satisfactory in the sale of gas itself, isn't it worth while to investigate its possibilities in the sale of appliances? The largest and the most successful advertisers, those men who have built up vast fortunes through their abilities to sell their products, are almost unanimous in their belief in price maintenance. Isn't it just possible that the gas industry would have more favorable publicity given to it, and that there would be more National advertising done if the gas companies would co-operate with the manufacturers in an effort to standardize prices and selling methods with the view of arriving at a method which would result in the most good to the gas companies, the manufacturers and the consuming public?

Window Display Service

Window display services such as are offered by the National Commercial Gas Association are well worthy of the support of the industry. Window displays may either be extremely valuable sales mediums or they may be absolutely worthless.

Department stores in large cities demonstrate the importance they attach to such displays in the large salaries they pay the experts who devise and arrange them.

The services of an expert undoubtedly are essential to the most effective displays.

It is not to be expected that each gas company should employ a man skilled along this particular line to handle this feature of its business.

They cannot afford to, and it would not be economical management if they could.

Syndicated designs would not be possible among department stores in the same city. But they are adaptable, and the best method among gas companies, for there is only usually one company in each city.

The Social Side at Conventions

The journal has been asked to express its views in regard to the amount of attention that should be devoted to the social side at association conventions. Our views in this matter are deep seated. Though it may seem to blast the traditions in technical journalism, we believe most emphatically that as much time should be devoted to the social features, and as much thought be given to the preparation of the entertainment program as to the technical, for the reason that we believe them equally important.

We believe that one good lesson well learned is many times as valuable as a dozen only superficially absorbed. The practical value derived from attentively listening to the reading of one good paper and the ensuing discussion with an alert mind is just as many times as great as that derived from listening to ten with one's powers of absorption deadened from listening for hours in a close atmosphere to several papers of perhaps greater intrinsic value.

Our primary reason for laying so much weight on the social side is as a preventive of brain fag. But there is the human factor also.

It is as certain as fate that acquaintances brought together after absence from each other for a long period are going to find the opportunity at some time or another to discuss old times. Particularly is this so in the gas field where a man's acquaintances among others in the same line of work are generally more numerous than is the case in other fields. For this reason particular stress should be laid on the social side at gas conventions.

If the time is all taken up with sessions it is certain that many groups are going to be found in the hotel lobby while these sessions are underway. This is unfair to those who prepare papers. They have gone to considerable effort to present information to their fellows which will be helpful to them. They therefore deserve the attendance of the entire convention, or at least of that section of it to which the matters they are discussing directly apply.

The Future Gas Market

"As I sense the situation, a very great market will lie in the towns and the small cities. The town will be the pre-eminent unit in the future . . . I believe that the very large city has reached its maximum of development.

"To my mind the well-kept, well ordered town or small city is going to be, in this age of the automobile and the motion picture, the ideal place of residence for the American family that has the means and the opportunity to live pretty much where it chooses."

Every gas man who sells gas in the small villages adjacent to large cities will readily agree with the above statement of Edward N. Hurley, chairman of the Federal Trade Commission. There is probably no class of domestic business which proves as satisfactory and as profitable as that secured from the families who have located in the villages and towns surrounding the larger cities. The automobile and the moving picture shows have been mentioned by Mr. Hurley. The electric railways and the telephone have also had their influence.

The one thing that has been instrumental in holding back many of these communities has been the lack of a gas supply. Now with the recent developments that have been made in high pressure distribution this class of business is made available for all gas companies. In some sections groups of men with only a limited capital may be able to render a gas service. In others the supply can be economically and satisfactorily pumped from the nearby city gas works.

During the past hundred years the average size of gas companies has been steadily increasing. In the future, especially since water gas generators have reached the high state of perfection they now enjoy and the adoption of acetylene welding has made the laying of high pressure mains economical and satisfactory, there is every reason to believe that the small gas company will come into its own as much as the small electric light company has come into its own during the past fifteen years.

Regardless of how the market is developed it surely will profit gas men to give very careful consideration to the golden opportunity now offered for developing a growing and a money-making business in the small communities. At the present time there is probably no class of business that offers anywhere near as great an opportunity as does this.

Encouraging Complaints

"If the customer who kicks is not turned into an asset he continues to be a traveling liability, which, like the snowball, grows with time." These words of F. N. Barbour of the Johnson Educator Food Company are well worth very careful consideration by every gas man. It has been proved time and time again that it is a very great mistake if it does not eventually prove fatal to follow the practice of discouraging complaints. More than one municipal plant can be traced directly to the former company's system of handling complaints.

After all it is not difficult to convert a complaining customer into a boosting customer. After a consumer with a grievance has been satisfied that consumer is likely to be a far greater asset to the company than the one who has never had any occasion to make a complaint.

Salesmen have at times been extremely successful simply because they have actually solicited complaints, handled them in an adept manner and followed them up with substantial sales of new appliances and gratifying increases in gas consumption. These salesmen always have a very loyal following among their customers. They have proved to them that they are working for the interest of those who buy gas as well as for those who sell gas. The result is that the consumers will in some cases actually insist that these salesmen sell them the appliances they need.

Some companies have found it very profitable to have each consumer visited by a representative periodically. The chief duty of this representative is to make sure that all appliances are giving perfect satisfaction and whether or not the consumer is satisfied with the service. In other words, this representative is actually soliciting complaints. In this way all the little grievances against the company or the service are eventually ferretted out and, in so far as possible, rectified. As a result the consumers not only use more gas themselves but encourage all their friends to do likewise.

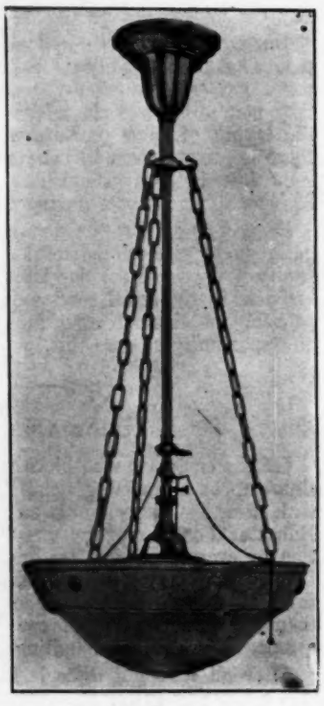
The work of encouraging complaints and satisfactorily settling all complaints made, regardless of how much time and expense may be involved, promises to be a far more efficient method of building up good will than any other method. "By their fruits ye shall know them" is a passage of scripture that all people believe in. Therefore, it makes little difference how much money a company may spend in publicity and advertising work, if it allows a sufficient number of dissatisfied customers to continue to be dissatisfied the time will come when no amount of money and no amount of skill in securing favorable publicity will offset the ill will built up through the dissatisfied consumers.

Replacing of Old Types with Modern Fixtures Presents Vast Market

Concentrated Effort on Part of Gas Companies and Fixture Manufacturers to Offer for Sale Only Such Fixtures as will Meet Requirements of Discriminating Public will Place Gas Lighting on High Plane Industry would Like to Have it Occupy

It has been of comparatively recent years since gas companies began to devote attention to the direct sale of fixtures to their consumers. Previously the field was left almost entirely to the efforts of dealers and manufacturers.

After the gas industry awakened to the possibilities presented in extending and holding the lighting portion of its business, through the direct marketing of fixtures, for a number of years little attention was paid to the variety of design, artistic effect and substantial construction in the fixtures offered for sale.



This does not mean that fixtures of substantial construction and decorative design were not obtainable, but it does mean that those of the higher types were handled almost exclusively by dealers.

The gas companies apparently considered fixtures merely as supports for lighting units and were content with displaying and offering for sale fixtures of the cheapest workmanship, generally of inartistic design and frequently of faulty construction.

Even with the improvement of light units little advancement was made in the methods employed by gas companies towards interesting their consumers in the better types. Not until the gas companies began to feel the inroads made by competitive illumination did they arouse themselves from this apparent indifference to the demands of the public and determine to employ methods which would more greatly stimulate the sale of gas lighting fixtures.

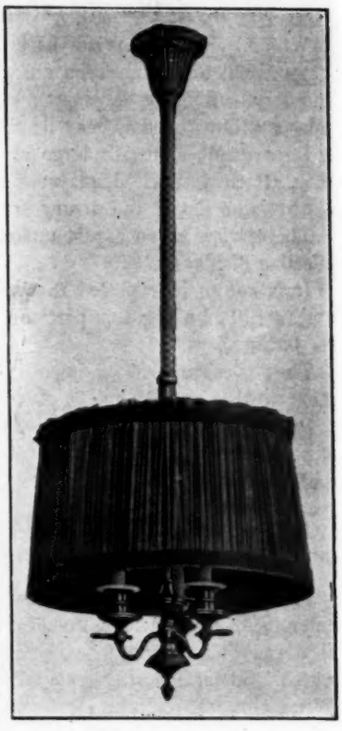
With the co-operation of the fixture manufacturers, such decided advancements have been made that to-day gas lighting fixtures are obtainable which not only meet the specifications of our Association, but harmonize with the surrounding home furnishings and are of unquestioned merit and artistic beauty.

There is an extensive field for the sale of gas lighting fixtures in every territory covered by gas mains. It is believed that most lighting installations over five years old are "out of date" and their replacement with fixtures of modern design is well worth intensive effort; therefore, it is extremely important and necessary that the gas companies systematically and intelligently develop this vast market lying at their doors.

The concerted effort on the part of the gas companies and the fixture manufacturers to offer for sale only such fixtures as will meet the requirements of a discriminating public, in workmanship, material, and design, will place gas lighting on the high plane the gas industry would have it occupy, asserted Samuel Snyder, of the United Gas Improvement Company, of Philadelphia, in a paper presented at the recent annual convention of the National Commercial Gas Association.

Improvements Made in Gas Fixtures Offset Those Made in Electric Units

Gas lighting is a subject worthy of our best efforts and nothing can futher this interest to a greater extent than developing the art of good fixture design, proper and adequate sales floor displays, and the very important consideration of the gas conpanies being represented by thoroughly competent and experienced salesmen. The development of gas fixtures in the past few years makes it possible to secure artistic effects which will meet every requirement.



The question of combination fixtures has been frequently discussed, and we may properly add to this feature a suggestion that gas companies eliminate the effort to match up the electric units on combination fixtures and hold to side wall outlets using straight gas. The growing appreciation of the value and artistic effect of bracket lighting improves the opportunity for gas lighting being given the preference in the residence.

The improvements that have been made in gas units, we feel, are sufficient to offset the improvements made in electric units. If dual installations of gas piping and electric wiring are expedient because of competition, there is no reason why the gas industry should seek to improve the combination fixture or in any wise encourage its continued use. There is every reason why a residence should be piped for gas, and such outlets as are required for lighting might just as properly be straight gas. The effort should be made to obtain the locations on the side walls in bed rooms, dining rooms, halls, and living rooms, in such positions as are usually provided for bracket lighting, together with baseboard and floor outlets to accommodate table portables and floor standards.

The thought is not to evade the competition with electric fixtures so much as it is to meet this competition squarely with gas fixtures of design that compare favorably. Here, again, our better judgment should teach us to avoid that extreme in which the appeal is made solely by a quasi artistic effect. There are certain fixtures which are useless as light sources, and the unhappy owners are compelled to depend upon other units for comfort and illumination. We may in time educate the public to discriminate in favor of the more sensible fixtures, while at the same time mould the desire for appropriate designs.

Success is Dependent Upon a Knowledge of Development of Art of Lighting

An adequate display and enthusiastic support through advertising and intensive selling should form the basis of our merchandising. Success in this field is dependent upon a knowledge of the development of the art of lighting.

Intelligent buying can only be the result of the dictates of this knowledge. Appropriate designs of fixtures are in the last analysis dependent upon a knowledge of the interior decoration of which they are intended to form a part.

Culture and refinement are distinguished by a display of taste, which finds its best expression in the harmony of decoration.

The problem resolves itself into this question: Are we to depend upon the caprice of individual whim and fancy, or are we to take the trouble to suggest that which is fitting and appropriate?

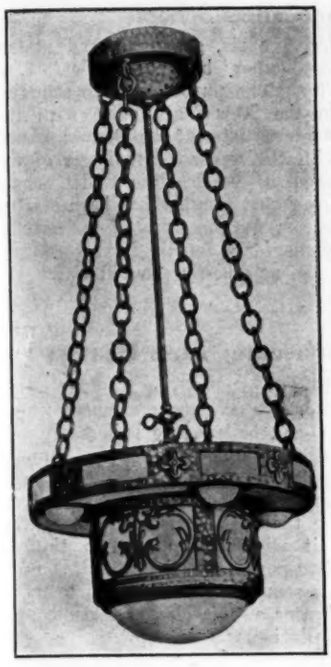
In selling it is essential to know the value of certain designs which are applicable to a particular interior furnishing.

On special occasions it has been the practice to obtain the services of the manufacturer to supply special designs.

Here, again, experience has taught that much that was considered special could have been obtained from regular stock if fixtures of good design were offered generally. It is such fixtures that we advocate for display.

Adequate Illumination and Eye Comfort

We have learned that in the development of the art of lighting two things are essential—to provide adequate illumination and to insure eye comfort. The growing appreciation of local lighting, as evidenced in the popularity of table portables, suggests the tendency toward specific or local illumination, rather than general or overhead lighting.



Particularly in the home, the cozy effect which makes one room appeal to us more than another is the fact that it is lighted with well screened light sources. The popularity of the dining room dome in the past may be traced to this effect. The present popularity of the floor standard indicates the appreciation for local lighting.

It is for these reasons we weigh our conclusion, that if side wall brackets are intelligently placed they will be used in preference to the most elaborate electric fixture that obtrudes itself in the center of the room.

In the field of commercial lighting, the demand for more powerful light sources is felt. The application of nitrogen lamps to semi-indirect fixtures in electric installations compels the use of larger sources in gas installations. There is a demand for an eight-mantle, horizontal burner and 20 and 24-in. dishes. The 16-in. pressed glass dish with a 300 watt nitrogen lamp can hardly be met with a 16-in. gas fixture using the five light horizontal burner, as existing outlets spaced twenty-four feet apart require the use of a larger source than the five light horizontal burner. It is not always possible to relocate outlets, because of structural difficulties, skylights, etc.

Church and Auditorium Lighting

The demand for diffusion and the growing appreciation of semi-indirect lighting in churches and large auditoriums has developed a field for large semi-indirect gas fixtures using 15, 20 and 30 mantles.

The dark interior decoration of many churches and the extreme heights of spaces to be lighted, require the development of a semi-indirect unit for gas equipped with a reflecting surface above the dish to return much of the light that would otherwise be lost against the non-reflecting surface of the ceiling.

Semi-indirect lighting from vertical surfaces, such as walls, offers a solution to many problems wherein the extreme heights of ceilings render the overhead suspension of gas units impractical.

The introduction of the C.E.Z. burner during the past year, and the campaigns of education incident to its introduction, have been responsible for a change from inverted to upright fixtures. Much ingenuity has been displayed in the design of the new upright fixture that characterizes it as different from the former upright fixtures that did service for the open flame gas burner.

It would be well for us to consider closely the chief feature of this distinction.

The modern fixture is more logical in that its structure is built up in the body of the fixture itself, whereas formerly, the fixtures were constructed with flimsy arms to support extremely large glass globes, while contrasted to the latter we note the substantial mould of the body of the fixture, which carries gracefully the new light units.

Tendency to Provide Structural Balance

Even with designs of a lighter mould we note the tendency to provide structural balance—light graceful arms supporting candle effects.

The introduction of new light units, following so closely as they did one upon another, has been responsible for the distortion of many otherwise satisfactory installations. As an illustration, fixtures, many of which were well designed, were found to be equipped with a variety of units, none of which were suitable or conformed to the fixture design. In the matter of holders, the appearance of a fixture is marred or preserved, as the case may be, due to the shade holders used. The development of semi-indirect lighting fixtures and the prominence of glass dishes and bowls in these units is best illustrated in the method employed in using the light source. The new burners adapt themselves well to this form of fixture.

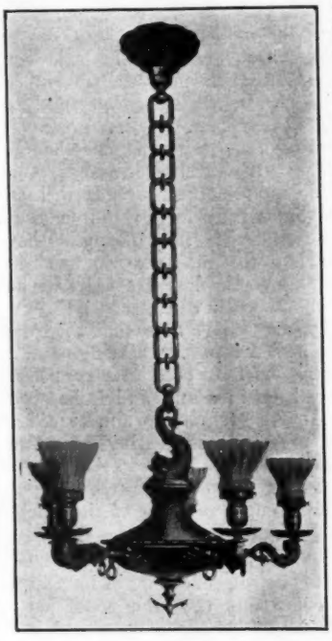
At first, the reflex unit was supported by a pendant and the dish or bowl hung on chains.

With the introduction of the Kinetic burner and the many types of these fixtures, a supporting structure was developed which supplied the gas ways as well as a support to a metal band holding the dish itself. The limitations of this feature eliminated those dishes not having a flange to engage the metal band.

Many beautiful designs in pressed glass bowls often suggested a reason for their use, but until recently no fixture was available. An adjustable hanger was developed, which permitted a bolt to pass through the drilled holes on the sloping slides at any angle from 0 to 90 deg. In this way the varying designs of bowls were automatically taken care of and units of much grace and beauty were made available and interchangeable.

Commercial Aspects

The use of colored photographs of fixtures by regular salesmen is a development of recent date. In special instances, pencil sketches of new designs, hand colored, have been used to advantage.



This means of bringing to the attention of the public the latest developments in the art has been used with marked success. The co-operation of the manufacturers in supplying sketches and photographs of the various designs regularly carried in stock by the gas company is to be encouraged. It only remains for the gas company to get the photographs in action to tell the story of the attractiveness, convenience and comfort to be had from modern lighting.

It is an easy matter to have the public inspect the various fixtures on display at the company's show room where the salesman can bring his prospects. For those who wish to make their selection from the actual samples displayed, the show room inspires a degree of confidence.

Co-operation between the street salesman and every member of the force in charge of the show room adds to the success of this method of selling. The salesman can arrange in advance for the visit of his prospect, and the store force can be prepared with the special designs that have been selected from the photographs shown.

The direct solicitation of the public by the gas company to improve lighting installations and the personal interest shown in the selection of their fixtures is a service that has much to recommend it.

Big Utilities Corporation Formed

The formation of the Cumberland Valley Utilities Company, a corporation capitalized at $3,500,000 is considered the beginning of one of the most gigantic business enterprises of Southern Pennsylvania. The new corporation was formed by the merging of the C. G. & W. trolley, the C. & S. trolley, the Waynesboro, Greencastle and Mercersburg Turnpike Company, the Waynesboro Gas Company, the Waynesboro Electric Light Company, the Greencastle Light, Heat & Power Company, the Shippensburg Light Company, the Shippensburg Electric Light Company, and the Shippensburg Water Company.

Hambleton & Company of New York and Baltimore are back of the consolidation, and the opening of these various utilities acquired will be in the hands of Sanderson & Porter of New York City.

Normal Increase of Business Not Satisfactory to Growing Gas Company

H. P. Pitts Asserts Reason for Fact That Gas for House Warming Has Increased No More Rapidly than in Proportion to Increase in Population is that Heating Engineers and Appliance Manufacturers have been in a Rut

To the majority of people, gas as a fuel for cooking and lighting purpose has been for years a standard commodity; there being few people who have not had some experience with its use in the kitchen, and a great majority have used it all of their lives.

It has, however, by no means become universal for cooking and hot water purposes, and a great deal remains to be done by the domestic gas salesman to further his sales for kitchen and bathroom purposes.

His efforts are keeping the sales at just about a normal increase, proportional to the population.

A normal increase of business, however, is not satisfactory to the growing gas company. It is not fair to the manufacturing or distribution departments, which are using all of their engineering skill, and the money provided, for replacements and extensions to give service; and a normal increase should not be satisfactory to the salesman.

It is true that the use of gas for industrial purposes has received considerable attention and has increased the sale consistently, and the demands for gas for this purpose have in the past few years given quite an impetus to the sales, but the business needs another boost and the way is open.

The use of gas for house warming along scientific lines has not received the attention it demands, and the question is asked: Why does this condition prevail? The manufacturer of gas will tell you that he has had the fuel at your service for a hundred years, and the distribution department will testify that the mains have been in the streets just as long, and the gas salesman has been working to increase his sales, but up to the last five years he has been in a rut for he could only shout "cook with gas."

The answer to the question appears to have been that there has been no heating apparatus designed for proper heating, and it is a peculiar truth. Heating engineers have been in a rut; heating appliance manufacturers have been in a rut, and it has been the duty of the gas salesman to make suggestions and to aid in the development of efficient and practical gas heating apparatus, declared H. P. Pitts, industrial engineer of the Pacific Gas & Electric Company, of San Francisco, Cal., in his paper on "House Warming," presented at the recent annual meeting of the Pacific Coast Gas Association at Santa Barbara.

Subject Geographic in Nature

The subject of house warming is one so geographic in its nature, and its application varies so much within the same zone that it is seldom that the authority on the subject is a unit, and it is no man's right to set himself up and proclaim what shall constitute the comfort of everyone.

The past five years may be said to have marked the advent of house warming, using gas in scientifically constructed appliances. Prior to this time, its utilization was through the medium of the gas grate, poorly vented or with, perchance, no vent whatever, or by an appliance which consumed the gas in the room, and having no vent, the products of combustion coming out into the room. These so-called fumes were more obnoxious than dangerous, but their presence did not have the influence of popularizing gas for more extensive heating.

Science has been employed to direct the method of construction, the subject of "Heat" and its elements having been studied and injected into the construction and operation, and ventilating of houses has reached a state of perfection never before attained. The result is that to-day the gas heating appliance salesman is as well equipped to place his apparatus before the architect and the householder with the same confidence that the dealer in those appliances which burn other fuels has heretofore enjoyed.

People Must Be Educated

Having the heating appliances and the fuel, however, are only the first steps; the people must know about them; they must be educated to the fact that gas is an efficient as well as an economical fuel. The old prejudices against its adaptability for house heating have to be swept away, for it is a fact that there are still a great many people who have condemned gas as fuel, and are still set against it for the reason that they are not aware that modern appliances exist.

Progress of the Cadets Schools

Nearly a half hundred Doherty cadets, graduates and undergraduates participated in a "get together" banquet on Oct. 31, at Fraunces Tavern, New York City. The purpose was to acquaint the large number of cadets in the New York office with the executives, almost all of whom are graduates of the Denver school.

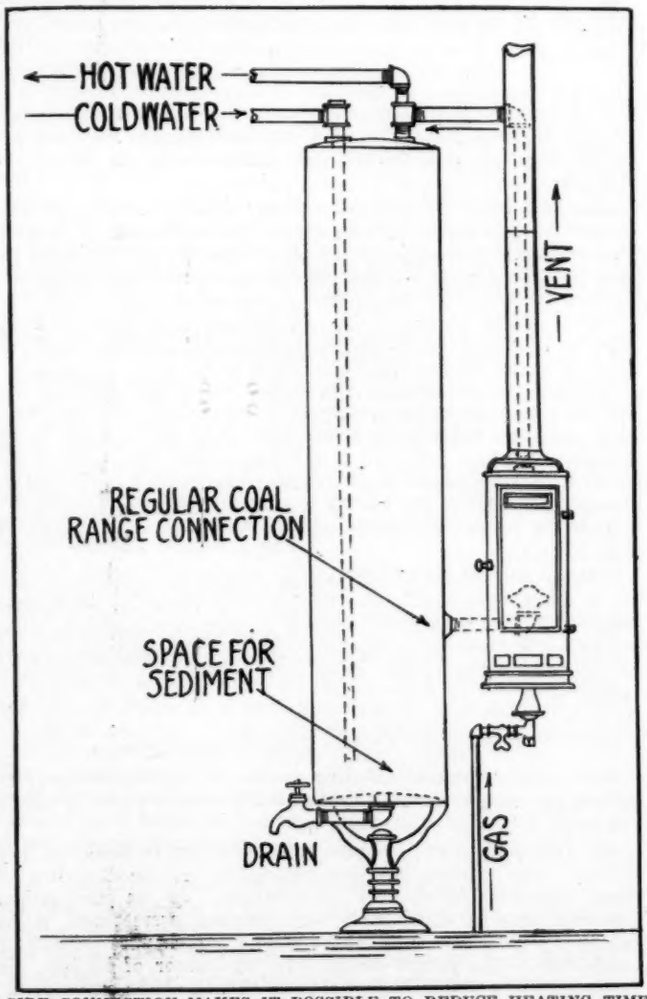
"As you know," said Holton H. Scott, general manager of the operating department in his banquet speech, "the Cadet school idea proved so successful in Denver that another has been started in Toledo, and a third in Bartlesville for the study of the natural gas and oil problems and the plans for a fourth, largely dealing with the oil refining problems, are now being thought out."

Improved Method of Connecting Tank Heaters to Boilers

It is a well known fact that in the average residences where tank heaters are connected to 30-gal. boilers, the boilers are seldom, if ever, heated to the bottom. Again those who connect tank heaters to boilers are always making the complaint that the heaters are too low and people have to stoop over to light them. If the bottom connection to the tank heater is made from the side connection of the boiler it will accomplish two things: First, the heater will be in a better position to light; and, second, it will circulate faster as there is some 80 lb. less water to move in a circulating process. The heater also is cleaner because any sediment that is in the water falls below this point.

A heater connected in this manner will heat water hot, through the side connection in the boiler, in five minutes less time than it is possible to do where the heater is connected to the bottom of the boiler.

This "Wrinkle" was furnished the Pacific Coast Gas Association by H. R. Bashford.



SIDE CONNECTION MAKES IT POSSIBLE TO REDUCE HEATING TIME BY FIVE MINUTES

Safety of Gas Lighting Stands Out Prominently as One of Its Great Recommendations

Recent Developments Have Given Wide Range in Sizes of Units—That Lighting Business is Profitable when Fairly and Energetically Treated is Beyond Dispute—Lighting End Should Receive Greatest Publicity

Recent years have seen great changes in gas lighting equipment. Remarkable improvements have been made in the units in available sizes and types, and in burner efficiencies. Great strides have been made in fixture design and construction. Likewise, the enclosing media for all varieties of units have been greatly increased in variety, utility and beauty.

Gas lighting is one of the most reliable sources of illumination. The supply of energy is easily stored and this, with modern methods of manufacture and distribution, insures gas lighting against the recurring and irritating interruptions so common to other sources.

The fire records of cities in every section of the United States and abroad, show that in proportion to the numbers of consumers, the number of fires due to gas is less than the number arising from any other source of energy. The records also show that the total financial loss from gas fires is very much smaller than the total from fires caused by other sources. The safety of gas lighting, then, stands out prominently as one of its great recommendations.

The adaptability of modern units and fixtures has been mentioned. The great variety of glassware, the artistic shades of silk or other fabrics, the carefully and correctly designed reflectors, and artistically designed and beautifully finished fixtures and the adaptation of our commodity to the semi-indirect lighting system, make gas most suitable for every class of interior and for every variety of lighting work.

The hygienic advantages of gas lighting have been pointed out and proved by the most competent authorities. Increased ventilation, the sterilizing effect, the addition of necessary moisture and the negligible effect on temperature, are advantages of the first magnitude in favor of gas lighting.

Thus states the report of the 1916 Illumination Committee of the National Commercial Gas Association—Thomas Scofield, chairman—from which the following has been abstracted:

Advantages in Favor of Gas Lighting

The soft, restful light from gas is especially beneficial for the eyes as exhaustive tests have conclusively shown. The very close approach to daylight color value, a most important feature of the gas unit, is a decided advantage. No considerable losses are necessary for correction for daylight as in some other commercial units. If color effects are desired they are easily and economically obtained from this white light source.

In point of convenience the modern units, with their single or double chain pull or key by-passes and pilots, make the ease of operation all that could be desired. Successful and satisfactory methods of distance control are also available, such as the mercury and magnet valves and wall push buttons, which place the gas unit, in the matter of convenience of operation, in successful competition with any of its rivals.

Recent developments have given us a very wide range in sizes of units. At the present time, we find units of suitable dimensions and power for the illumination either of the smallest area by local lighting or for the illumination of the largest area by general lighting. Therefore, in this essential point of flexibility gas is in the front rank of lighting agents.

Its unquestionable economy needs only the merest mention. These developments and progressive methods have not been excelled by any competitive lighting units or system, and gas lighting is still far in the lead in the question of cost of operation.

So much for the salient points of merit of modern gas lighting. Does not this lighting agent of ours merit energetic advancement on the part of gas companies, and does not this evidence of progress and pre-eminence prophesy greater attention to the continued improvement in gas lighting fixtures, glassware and accessories on the part of the manufacturer? Gas companies are certainly called upon to encourage this development by a determined and systematic effort to secure and retain gas lighting patronage.

Arguments Advanced Against Gas Lighting

Let us now consider some of the arguments that are advanced against gas lighting and see what merit they have, if indeed they have any at all.

Gas lighting is unable to compete with modern illumination from other sources. It cannot be possible that any gas company, conversant with the present status of modern gas lighting can entertain such an argument. A careful study of the salient merits mentioned above, which are conservatively rather than radically phrased, will at once convince anyone of the fallacy of this argument. Furthermore, the success which has been met with where energetic effort has been made, irrevocably contradicts and falsifies such a conclusion. As examples we may cite Wilmington, Del.; Toronto, Canada; Newark, N. J.; Jersey City, N. J.; Haverhill, Mass.; Detroit, Mich.; New Haven, Conn.; and many others.

There is not sufficient profit in the lighting business. Our present "send out" for lighting can be conservatively stated to be 40 per cent, if not 50 per cent, of the total send out. Now, the same relative charges for promotive effort should be made against gas lighting as are made at present against fuel and power business. This is most conservative. In other words, no unfair discrimination should be made against such a large percentage of our total send out. If this fair policy is followed there will be an equal return per cubic foot from gas lighting as from other gas business. This is bound to be true since no different manufacturing or distribution costs are encountered, and is further borne out by the experience of companies that actively push gas lighting and make this fair apportionment of charges against it.

Furthermore, examples right before us prove this point beyond doubt. There are many combination gas and electric companies who are at the present time carrying on continuous and strenuous efforts to secure and advance gas lighting. If there were no profit from this lighting business would they continue to do this? They are not doing it for philanthropic reasons, but because they are making money thereby. This can easily be understood. Since gas can be stored and since the gas lighting demand in factories and other installations comes at the time of the peak of the electric load, it becomes profitable for these combination companies to seek this gas lighting business. If this were not true, these companies would only too quickly discourage all gas lighting and so relieve themselves of such a large and unprofitable portion of the business. That gas lighting is profitable business when fairly and energetically treated is beyond dispute.

There is no field for gas lighting. The gas lighting field naturally divides itself into two main divisions—prospective lighting business and actual or present lighting business. It will only be necessary to consider the field at the present time to prove the absolute absurdity of this statement. A consideration of the size and magnitude of the field now open to us, and being operated, will be sufficient encouragement and argument without taking into account the vast field of new and prospective business. For this purpose let us consider the following figures of gas and electric meters installed at the present time in 40 cities throughout the United States.

In these 40 cities, having a total population of about 16,000,000 and representing East, West, North and South, there are 4,380,522 gas meters in use and a total of only 1,691,130 electric meters in use. Taking the most conservative assumption that there is a gas meter in every location where an electric meter is installed let us see what we get. This means that there are 2,689,392 locations where gas only is supplied—there are 2,689,392 lighting installations to modernize and bring up to date and to hold—there are 2,689,392 installations where electricity cannot possibly be used at the present time—there is a field of 2,689,392 locations for gas lighting work. Thus, in a consideration of the grand total of 6,071,652 gas and electric consumers, a per cent of 44.29 of this grand total forms a productive field for energetic gas lighting effort, and this without any consideration of future business in new buildings, or business secured in preference to some other illuminant now used.

In considering these figures the following assumption has been made, which we believe is an entirely fair one. Assume the same percentage of the total electric meters used for purposes other than lighting, as the percentage of total gas meters used for fuel and power. Can there be any doubt that modern gas lighting has a field in which to work?

Necessity of Effort to Care for Lighting Business

Let us now consider briefly what may happen if no effort be made to properly take care of this lighting business. There is but one general answer. Most of it will eventually be lost, perhaps all of it. It is not reasonable to suppose that the gas industry wishes to stand inactive, while this business, already connected, slowly slips away. With the loss of the lighting business will come the loss, in many cases, of other business in the same location. This will naturally follow. It certainly would be poor policy to allow this to occur, and it can only be effectually prevented in one way—energetic and intelligent effort to hold the present gas lighting business.

What advantages can accrue from holding this present connected lighting load? If this business is held it means that these installations will be up-to-date and modern. Now, the use of gas for lighting is more in evidence, is more apparent and more continuously before the consumer than any other application of our product. Modern lighting with all its attractiveness, will become a widespread and far reaching advertisement for the commodity gas and for the gas company. It will be the right kind of advertising, for the holding of this lighting business necessarily means satisfactory service. There is no business which cannot profit by good, clean and attractive publicity. The gas industry surely can use it to great advantage. This publicity will benefit not merely the gas lighting, but unconsciously the public will associate the modern ideas and satisfactory service of this lighting, with all the other uses of gas. This one consideration alone makes the effort to hold this business decidedly worth while.

Advertising Value

Modern satisfactory lighting service will not only advertise, but it will directly influence the actual use or adoption of gas for other purposes. A satisfied consumer using gas lighting will prove to be an easier prospect for fuel or power than one who has given up the use of gas for lighting. The experience of those companies which have gone after the lighting business proves this.

One consideration is peculiar to retaining old business. This is the re-fixturing or re-equipping of fixtures in these old installations. Naturally this work must be done if these installations are to be made modern. The banishment of the old, unsightly, often unsafe gas fixture and the open flame burner or cheap and antiquated mantle burner is essential to the holding of this lighting load.

The committee does not take up at any length the consideration of detail of methods, but strongly recommends:

That each and every gas company inaugurate a systematic movement for the equipping of old fixtures now in place, with the most modern and efficient lighting units and accessories, and for the refixturing of present installations with the most modern fixtures and up-to-date equipment.

There are two points of vital importance to the acquisition of new lighting business. These are the installation of complete and adequate gas piping in new structures and the equipping of these new buildings with modern gas lighting fixtures.

That every gas company make a systematic and energetic effort to secure the complete and adequate gas piping of all new structures for lighting outlets and for floor or baseboard outlets, as this is of the most vital importance in any effort to secure prospective lighting business.

That gas companies make a decided and, if necessary, a co-operative and concerted start to secure the fixturing as well as the piping of new structures with well designed, modern and appropriate gas fixtures.

Importance of Maintenance

In the localities where store lighting has been persistently sought many installations have been secured and many satisfied store owners have been won over to gas lighting and gas service.

Probably the most important question of all remains for attention in this report. It is one which applies to all classes of lighting, residence, factory, office and store—in fact to every installation, no matter what its character, if it uses modern mantle lights. This committee feels that on this one paramount feature depends the success or failure of all gas lighting. This is the question of maintenance.

No matter how successful we are in securing the piping and fixturing of new buildings, the re-equipping and modernizing of old installations in domestic, commercial and industrial lighting business, we can never hope to give the fullest and most satisfactory lighting service to the consumer without a satisfactory and adequate system of maintenance. It is granted by everyone that unless the best lighting service possible be given, our lighting business will suffer. It is, therefore, easily seen how fundamentally important this question becomes.

The committee believes that a comprehensive maintenance system should be provided in all localities. By comprehensive system is meant one that covers the following requirements:

Maintenance throughout the entire district supplied.

Maintenance of all classes of lighting.

Attractive maintenance insuring the co-operation of the consumer.

Maintenance of the maximum efficiency of burners and equipments.

Maintenance that is as near self-supporting and practicable as possible.

It has been proved by the experiences of many companies that a close approach to the ideal requirements outlined above can be reached. Naturally the details of these maintenance services vary in different localities due to local conditions and restrictions. This report does not intend to suggest, therefore, any detailed plan whatever, but only wishes to emphasize the immense importance of this maintenance work. It is needless to attempt any proof of either its feasibility or its importance when we have before us the successes atttained in such cities as Toronto, Pittsfield, Fall River, Worcester, Lynn, Haverhill, East Boston, Bangor, Grand Rapids, Boston, Detroit, etc. The gratifying results in these localities indicate beyond question that it is quite possible to carry on a satisfactory maintenance system and that such an operation is profitable to the company delivering the satisfactory lighting service, in the securing of satisfied consumers, in increasing the good will of the consumers, and in augmenting the demand for gas owing to the service rendered.

The committee recommends most strongly, therefore:

That every gas company institute some systematic, comprehensive system of maintenance which will provide for the thorough cleaning, adjusting and repairing of all mantle units in the district supplied, so designed as to be as small a burden and inconvenience to the consumer as is consistent with efficient and careful work.

Publicity

Gas lighting of all the uses to which gas is put is so constantly apparent, and is so consistently used in season and out of season that it is better adapted to favorably influence the consumer than any other service for which gas is available, except perhaps cooking. Furthermore, it is the one use of gas which has received perhaps the smallest amount of advertising and about which the public knows the least. This, then, should be the one service which should receive the greatest share of publicity.

This advertising, however, can well be applied to all other branches of the industry by having a system which would contribute a continuous supply to the press, the magazines and periodicals, etc., of information and material tending to advance the general knowledge of the utilization of gas in all its ramifications. Every business can profit by clean, progressive publicity, and the gas business is by no means an exception to this rule. With this fact in mind, the committee recommends the following:

The establishment of a central office or bureau whose function will be to supply the press, magazines, periodicals, etc., with instructive articles and illustrations on the utilization of gas in all its branches, with special reference, however, to lighting, and on the developments taking place from time to time in the application of lighting and gas generally to modern industries.

News of the Gas Industry

Boston Consolidated Asks Approval of Contract for Purchase of Gas

The Boston Consolidated Gas Company has entered into a contract with the New England Gas & Coke Company for the purchase of gas from the latter, and has asked the Massachusetts Gas & Electric Light Commission to approve the contract, in accordance with a law passed in 1903.

The agreement between the companies calls for the sale and purchase, beginning December 1, 1916, of "all gas of not less than 18 c. p. produced by the coke company at its works in Everett, beyond the amount needed by the coke company in connection with the operation of its manufacturing plant. The gas shall be gas which has not been purified of carbon dioxide and of sulphur impurities." The price to be paid therefor shall be 34.5 cents per thousand cu. ft., but in case the cost of purification exceeds one-half cent per thousand cu. ft., an allowance shall be made by the coke company by which the latter will pay the excess cost, the amount to be determined by multiplying the number of thousand cu. ft. by the excess of the average cost per thousand cu. ft. The cost of purifying embraces materials used, wages at works, repairs and maintenance of works, tools, supplies, water, steam and any other expenses in this connection.

If in any period of 24 hours the average c. p. of the gas furnished by the coke company shall fall below 18, the price shall be reduced two cents for each candle below that figure.

The gas is to be delivered at the Everett works, and the c. p. determined after purification and also the amount of gas to be paid for shall be based upon its meter measurement after being purified.

The coke company is given the right at all reasonable times to test the c. p. and to inspect and test apparatus used for testing and measuring. The Gas and Electric Light Commissioners shall have the same right. Daily tests shall be made by the gas company of c. p. and a test record kept open to the Gas Commission's inspection.

The coke company agrees to deliver not less than 2,500,000 cu. ft. per day, and if it falls short of this amount, except as a result of strikes or fire, to pay the gas company 15 cents per thousand cu. ft. as damages.

The contract runs for three years, except that if before December 1, 1919, the gas company's generating capacity for economical production is insufficient, and it desires to continue the contract pending construction of works, the contract may run two years more.

Low Rate Prevents Waste

The Public Service Commission of Indiana has entered an order authorizing the Citizens Gas Company of Indianapolis to make a special rate for natural gas of 10 cents a thousand cubic feet to Atkins & Company under peculiar restrictions. It is set out in the order that the Citizens Gas Company necessarily has large waste gas, because consumers do not use all of the output of the company, and the excess is waste unless the company can dispose of it in some manner. This will not only prevent waste, but bring some revenue to the gas company from a source where there had been none.

Baltimore Company Has Good Showing

The gas output of the Consolidated Gas, Electric Light & Power Company of Baltimore, for the month of October, 1916, was 466,133,000 cu. ft. The increase for the month as compared with October, 1915, was 50,016,000 cu. ft. or 12 per cent.

October 31 closed the fourth month of the current fiscal year. The increase for the gas output for September was 15.4 per cent; for August 6.6 per cent; for July 9.5 per cent. The increase in the gas output for July 1, 1916, to August 31, 1916, as compared with the corresponding period of 1915 was 11.5 per cent. The increase in the gas output for the fiscal year ended June 1, 1916, as compared with the previous year was 8.1 per cent.

Rate Increases for Large Consumers

The Manufacturers Light & Heat Company of East Liverpool, Ohio, has recently notified the pottery manufacturers in that city and in West Virginia towns on the south side of the Ohio river, that the price would be advanced one cent per thousand cu. ft. The new rate will become effective Dec. 1.

Houston, Texas, Gets 1,500 New Gas Users in Year

The Houston Gas Company has about 1,500 more persons using gas this year than last. The company now has 15,092 customers and a year ago it had only 13,600. The company now boasts of 223 miles of gas mains in this city and extensions are constantly being made. Several industrial concerns in the city have also taken up the use of gas during the year.

Massachusetts Gas Shows Increase

The gas output of the Boston Consolidated Gas Company for October was 501,131,000 cu. ft., an increase of 8.4 per cent over the same month a year ago.

Cincinnati Undecided as to its Present Rate

Argument on the question of whether the State Public Utilities Committee can fix an emergency rate for the City of Cincinnati, pending a referendum vote on the new 35 cent gas ordinance there, will be heard shortly by the State Public Utilities Commission. The question was raised by a city solicitor of Cincinnati, and it is to be hoped that the matter will be decided in the very near future.

Bloomington, Ill., Fixes New Rates

An agreement has been reached whereby the citizens of Bloomington and Normal, Ill., will procure a rate on gas which means a saving of approximately $10,000 per year on the amount which is now being consumed.

This new rate—the one that affects the small consumer, cuts the former rate of $1 for the first 40,000 cu. ft. consumed down to 95 cents for the first 3,000 cu. ft. and graduates the scale down to 50 cents for all over 100,000 cu. ft.

The gas company feels that better results have been obtained by this conference than if the case had been settled through legal channels.

Gas Lighting Expert at Boston Sees Glowing Future for Lighting Business

The dual system of house lighting with either combination gas and electric fixtures or straight gas and electric, is advocated for new residences by a lighting expert connected with the Gas and Electric Improvement Company, Boston, Mass. The additional expense of the dual installation is trifling and the equipment insures a return to the gas company as well as to the electric company, he says.

For houses of the more pretentious type, a dual system is the only safe course, since even for emergency service it will pay the owner to provide both types of lighting. The builder of such a residence needs only to be shown that the few dollars extra investment insures continuity of lighting service, obviating the embarrassment incident to electric failures and breakdowns—generator and line troubles, or the mere blowing of fuses, all of which occur periodically in the best electric service. The great advances in gas installations, with their concealed outlets and non-leakable pipes need but to be demonstrated to these fastidious people.

The expert referred to believes that a false condition has been created in favor of electric lighting, for which both builders and gas companies are to be blamed. He is confident that the gas lighting business has a large future before it, and is pushing both the home lighting and store lighting proposition through special lighting representatives in the several companies controlled by the syndicate.

New President of National Commercial Gas Association Man of Wide Experience in Utility Field

For nearly forty years James T. Lynn, the newly elected president of the National Commercial Gas Association, has been a figure in the gas industry of the United States.

Starting, as a boy, in the Pittsburgh fields, running a wheelbarrow as he explains it himself, he steadily climbed the road to success. To-day he is president of one of the most efficiently conducted public service corporations in America.

Mr. Lynn's wide and intelligent grasp of problems confronting the gas industry early brought him into the larger fields of endeavor where he came into personal contact with National leaders in both the artificial and natural gas fields. It was only natural, therefore, that he should help to organize, and later accept the presidency of the Michigan Gas Association. Also he was one of the prime movers in the Western Gas Association, and became its president. When the Natural Gas Association of America needed someone to guide its destinies, Mr. Lynn was the man selected. His administration of the affairs of the association was so efficient as to earn for him the well deserved approval of his associates.

Detroit has a municipal electric light plant. It was not a success, probably because the members of the Public Lighting Commission were not experienced men in the illuminating field. Mayor William B. Thompson, a democrat, proffered an appointment to Mr. Lynn as a member of the commission. The Mayor dwelt on the necessity of having practical loyal citizens of Detroit on public commissions affecting the welfare of the city. He insisted that Mr. Lynn accept the appointment. Mr. Lynn agreed, and for nine years has been the most influential member of the public lighting commission. When his term expired he was reappointed by the republican mayor, and is now serving for the second time as president of the commission.

Several years ago many complaints were made against the service and rates of the Detroit Gas Company, and the public clamored for an investigation. The mayor appointed Mr. Lynn to represent the city. As a result of exhaustive investigations and recommendations made by him, the Detroit Gas Company expended about $250,000 for changes necessitated by reason of the rapid growth of Detroit. The gas company was willing, and the consumers were satisfied. Complaints at once ceased.

It was almost 25 years ago that Mr. Lynn left Chattanooga, Tenn., where he was superintendent of the gas plant, to accept a similar position with the Detroit City Gas Company.

Later the thought occurred to him that some small cities were not being as well served as they might. He thereupon left the Detroit City Gas Company and organized the National Gas, Electric Light & Power Company, of which he became president. This company to-day owns and operates gas and electric light companies in many small cities in Michigan, New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois and Missouri.

Through his efficient organization he was able to voluntarily reduce the rates in all these cities, and increase the quality of service. His policy was to give consumers the best possible service at the lowest possible rate, while at the same time assuring his stockholders a fair return on their investment. This policy naturally won for him the respect and good will of his consumers.

That it "pays" to be just to consumers is one of the cardinal principles of Mr. Lynn's code. That this policy has its effect on those "higher up" has proved to be true in his case.

On two different occasions when he appeared before the public utilities commissions of Ohio and Michigan asking for their sanction on an issue of securities, he was complimented each time by the chairman, who without delay issued permission and at the same time stated that the appraisal of the property as put in by him was even less than what it was found to be by their own appraisers.

Mr. Lynn is a member, in his own city, of the Detroit Club, the Detroit Athletic Club, The Bloomfield Hills Golf Club, the Grosse Pointe Country Club, The Board of Commerce and other social and commercial institutions.

Rockford, Ill., to Have Reduction

It has been stated that the Rockford Gas Light and Coke Company will file a revised statement of rates with the public utilities board which will offer a 5 cent reduction on the first block of gas used, 5 cents on the second, while the third block remains the same, making practically a 5 cent reduction on each one thousand cu. ft. to the resident consumer. This reduction will be offered where a plain meter is used and those now using a prepayment meter can have them changed to a plain meter upon application at the office.

Ithaca Gas & Electric Corporation

The Ithaca Gas & Electric Corporation has been authorized by the Public Service Commission to purchase all the outstanding capital stocks of the Oneonta Light and Power Company, the Norwich Gas and Electric Company and the Homer and Cortland Gas Light Company. All the stock will be purchased on its added par value, 2,000 shares of the Norwich Company at $200,000, 2,276 shares of the Oneonta Company at $227,600, and 1,474 shares in the Homer and Cortland Company for $147,400.

American Nitrate Deposits Prove Disappointing

Nitrate deposits in many parts of the United States have been examined during the last two years by the United States Geological Survey, Department of the Interior. Prospectors in many places have raised great hopes by finding good surface showings of the salts, but investigation has seemed to force the acceptance of a general adverse judgment as to their value—a judgment that has been adopted with the greatest reluctance by all concerned.

As a result of careful study of the deposits, and particularly of evidence gathered on recent visits to prospects in different parts of the country, Hoyt S. Gale, a geologist of the Federal Survey, has submitted the following general summary:

Fine specimens of practically pure nitrate of soda and nitrate of potash (saltpeter) have been found in many parts of the country, and careful investigation of specimens and localities seems to warrant some definite conclusions as to the practical value of these deposits, especially to those who are invited to spend their money in investigations like those the Survey has already made.

The nitrate salts occur as crusts or films on the faces of ledges; as seams—most of them thin, though some are fairly thick—in crevices of shattered rock; and as deposits filling spaces in porous rocks at and near the surface or extending to a depth of several feet. They are naturally preserved in recesses in the rock ledges, where they are sheltered from the dissolving action of rain, snow water, or even mist. They are found in lava ledges, in beds of volcanic tuff or ash, and in limestone and standstone. Their existence or preservation is apparently dependent rather on the shattered or porous nature of the rock than on its kind or composition. These deposits, which have been referred to as cave or ledge deposits, are of essentially the same type wherever found, although they vary considerably in details of occurrence.

The incrustations are found not only on the faces and fractures of ledges of solid rock, but some of them form layers or cementing constituents in the loose soil and rock breccia at the bases of cliffs, or lie in places protected from the weather. Some samples obtained from both these sources are rich in nitrate salts, and analyses of such materials will bear little significant relation to the actual character or content of the mass of the rock of which the ledge is formed. It appears that the deposits are surficial—that is, they do not extend far into the mass of the rock—and the nitrate salt found is insignificant in amount.

Nitrates are found in unusually large quantities in some soils and in some clay hills, particularly in southern California. These deposits have been examined by many persons and the general conclusion reached has been unfavorable to the idea of their practical utilization. The nitrate content, although unusually large as compared with the content of ordinary soils, probably does not average over 1 or 2 per cent of the soil or clay, and it is very doubtful whether the material could be worked commercially.

Judgment already reached as to these deposits and who is determined to devote his time or money to their further exploration should do so with full knowledge of the evidence already in hand and should not be led into such a venture by more or less misleading representations. The Geological Survey will always be glad to make an examination of any samples submitted.

Iowa Company Increases Capital

The Iowa Gas & Electric Company of Washington, Ia., has increased its capital from $200,000 to $600,000.

California Company Asks to Increase Rates

The Valley Natural Gas Company, which sells natural gas to operators in the Midway oil district in Kern County, and to distributing corporations at Bakersfield, Taft, Maricopa and other Kern County towns, has made application to the State Railroad Commission for authority to increase rates.

Subsidary Has Good Standing

The New England Manufacturing Company, the chemical company in which the Massachusetts Gas Company has substantially one-half interest, has paid off from its earnings its entire floating debt, and does not owe a dollar. Furthermore, the company, it is understood, will take $250,000 of the new $300,000,000 British loan.

High Lights of the Convention

SAMUEL T. BODINE, president of the United Gas Improvement Company, was registered at the Traymore.

H. M. RILEY was one of those in attendance from the Baltimore Consolidated Gas Electric Light & Power Company.

ROBERT FFRENCH PIERCE and the issue of the AMERICAN GAS LIGHT JOURNAL, which contained his article, revealing that statistics show that the ratio of electrically-caused fires to those caused by gas is slightly over 2½ to 1, arrived at Atlantic City almost at the same time.

WILLIAM J. SERRILL, of the United Gas Improvement Company and president of the Illuminating Engineering Society, was in attendance at the convention.

WILLIAM J. WELSH, of the New York & Richmond Gas Company, was registered, but managed to keep himself lost in the throng.

JAMES T. LYNN, probably in preparation for the arduous duties destiny has marked out for him as president of the association during the ensuing year, spent several hours in a roller chair on the Boardwalk Monday.

SAMUEL INSULL and E. G. COWDERY, chairman of the board and president of the Peoples Gas Light & Coke Company of Chicago, respectively, arrived in Atlantic City Tuesday morning.

ALFRED E. FORSTALL, recently elected president of the American Gas Institute, was an early arrival at the convention.

J. ALEX MAYERS, of the Public Service Construction Company, arrived at the Hotel Traymore, Tuesday night.

A. H. HUMPHREY reached Atlantic City Tuesday about noon.

SYDNEY A. MASON, President of the Welsbach Company, was compelled to explain that the consumer, and not the gas companies, would pay for the new group of buildings at Gloucester, described in the AMERICAN GAS LIGHT JOURNAL on page 289 of the Oct. 30 issue.

H. B. MCLEAN, past-president of the association, was called upon to seek out and escort the newly elected president to the platform.

ARTHUR HEWITT introduced Mr. Lynn to the association, which had recently elected him, and outlined, for his information, what was expected of him.

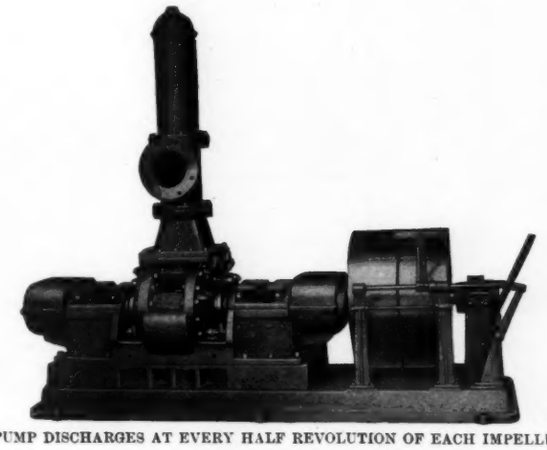
LEWIS J. CARDER, of Rio de Janeiro, who was in attendance at the American Gas Institute Convention at Chicago, and who was at that time re-introduced to American gas men on page 291 of the Oct. 30 issue of the AMERICAN GAS LIGHT JOURNAL, was also in attendance at the Atlantic City Convention.

GEORGE W. ALLEN, advertising manager of the Consumers Gas Company of Toronto, and secretary-treasurer of the Canadian Gas Association, terminated his lecture tour through the New England States to attend the convention.

Rotary Pumps have Attained Important Place in By-Product Coke Oven Service

The new catalogue just issued by P. H. & F. M. Roots Company of Connersville, Indiana, contains valuable tables and engineering data on the selection of pumps, friction in pipes, horse power required for various conditions and is well illustrated with cuts showing different installations of the Roots Rotary Pumps. This company has brought these pumps to a high degree of efficiency during the fifty-eight years of its experience by scientific research, careful design and conscientious shop work.

The operating principle of Roots Rotary Pump is simple. The moving parts consist of two parallel shafts with an impeller on each, and each having a gear keyed on the end. They are assembled at 90 deg. one to the other and this relation is permanently maintained by means of the previously mentioned gears. The accompanying cut shows a view of the pump with the headplate removed. The impellers rotate in opposite directions, one clockwise, the other counterclockwise. The water from the suction pipe is enclosed between the impeller (as shown in vertical position) and the case so that for an instant there is a body of water which is not open to either the suction or discharge sides. As the impeller continues to rotate, it immediately opens to the discharge side and the volume which was enclosed is forced into the discharge side. Since, owing to the shape of the impellers, there is at no time a possible return between the shafts, it is evident that a quantity of water equal to the enclosed volume is discharged at every half revolution of each impeller. For each revolution of the pump, therefore four times this volume is discharged.



PUMP DISCHARGES AT EVERY HALF REVOLUTION OF EACH IMPELLER.

The impellers are of steel forged integral with the shaft. Distinct advantages obtained with this design: first it makes for perfect rigidity obviating vibrations so harmful to gears, stuffing boxes and bearings; second, it eliminates a pressed and keyed fit between the impeller and the shaft. The removable cast iron tips may be changed easily without dismantling the machine.

The case is composed of two identical semi-circular castings and two identical headplates, all properly ribbed to eliminate any deflection. They are of homogeneous close grained gray cast iron. Suction air chambers are cast in the lower part of the case.

The bearings are approximately three times the diameter of the shaft which, since the shaft is of ample proportions, gives a very low bearing pressure. This together with profuse oiling maintained by oil chains or rings reduces wear to a minimum. Since practically all of the wear occurs vertically, the single wedge beneath the lower half box permits adjustment at any time, if necessary, while the pump is in operation. In the pumps of large capacity the expense of a quarter box bearing is justified owing to the greater nicety of adjustment thus made possible and which becomes necessary on the larger sizes. The oil reservoirs beneath the bearings are very generous, permitting continuous operation without attention. The main bearings are cast integral with the headplates, resulting in a very compact design of great rigidity.

P. H. & F. M. Roots Company has made a specialty of cutting accurate gears for its products. Range cutters, that is, cutters

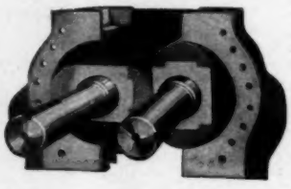
which are approximately right for several sizes, are not used. A special cutter is used for each size of gear. The exceptionally wide face, about seven times the circular pitch, gives long life with little wear. The involute tooth is used. For material semi-steel has been found to have excellent wearing qualities.

The pump is self contained on a deep well ribbed bedplate. Perfect alignment is thus maintained. The pumps are shipped ready to be grouted into position.

A number of styles of drives are described and illustrated in the catalogue. Local conditions and the purchaser's preference generally govern the choice.

As these machines have their most common application for pumping water and non-corrosive liquids, cast iron and steel are commonly used as previously described. In case the liquid to be handled is corrosive, suitable resisting metal is selected.

Designs have been made for three ranges of pressures: low lift pumps for heads from 0 to 30 feet; medium lift pumps for heads from 30 to 80 feet; and high lift pumps for heads from 80 to 200 feet. Capacities vary from a displacement of 1/10 of a gallon per revolution up to 50,000 gallons per minute. The applications of these pumps are universal within the capacities and heads given above. They are strongly recommended for irrigation projects, reservoirs, condensers, cooling towers and circulating systems. Recently Roots Rotary Pumps have become prominent in a new field through their adaptation for by-product coke oven service to handle wash oil, tar and ammonical liquor.



Points of primary consideration when comparing Roots Rotary Pump with any other types are the facts that it is a positive displacement pump and that it is valveless, thus combining merits of both the centrifugal and reciprocating pump. Priming is never necessary for starting and the delivery is constant and independent of the head. The efficiencies obtained are extremely noteworthy, varying from 75 to 85 per cent of the power applied to the pump shaft. Small first cost, small repairs, small maintenance, small floor space and long life are the results of the described simplicity and ruggedness of design.

Besides the rotary pump under discussion the P. H. & F. M. Roots Company also manufacture blowers, exhausters, boosters and vacuum pumps of equally commendable design for their specific uses.

Wellesley, Mass., to Extend Mains

A permit has been granted to the Newton & Watertown Gas Company to open and obstruct a portion of Washington Street opposite Saint John's Church, for the purpose of extending gas main to a proposed street on the Luff estate.

Lower Rates for Hoopeston, Ill.

The council has recently extended the franchise of the Hoopeston Gas and Electric Company for a 5 year period. A clause has been included in it providing a reduction for lights used both by the city and the people, amounting on an average to 10 per cent lower than the present price.

Extraction Plants Nearing Completion

The gasoline extraction plants at Big Heart and Arkansas City of the Empire Gas & Fuel Company, operated by Henry L. Doherty & Company, are 95 per cent completed, and will be in operation within a short time. With the completion of these two the Doherty Company's extraction gasoline plants will number four, as one is in operation at Cushing and another at Caney, Kansas.

Worcester, Mass., Company Shows Earnings of Eleven Per Cent for Year

Although the Worcester Gas Light Company paid, during the fiscal year ending June 30 last, dividends amounting to 10½ per cent of its capital stock, its annual report filed with the state board of gas and electric light commissioners shows that its balance was increased by slightly more than $10,000 so that the company's earnings on its $1,400,000 of capital were in reality a little more than 11 per cent.

The company had a gross income of $912,904.92, of which $737,046.71 came from the sale of gas, and $175,858.21 from the sale of residuals.

During the year the company manufactured 615,173,000 feet of coal gas and 393,518,000 feet of water gas, a total of 1,008,691,000 feet. Of this 956,838,000 feet was sold by meter; 7,511,800 was supplied to public lamps, and 3,820,700 feet was burned at the company's works and in its offices.

Show Rooms for Cooking Demonstration

The Portland Gas Light Company recently allowed the Housewives League of Portland, Me., to hold a cooking demonstration and prize contest in their show rooms. Prizes were arranged by the League, such as $5 in gold; half a barrel of flour; a gas iron and several other articles for the best loaf of bread and fancy and plain cakes.

The demonstration is aimed to spread the knowledge of the right food combinations.

The offering of show rooms for this, and such purposes as church and local cake sales, is becoming more and more prevalent, for in this way persons who pay their bills by check, are attracted and brought into gas company's rooms when they would have no other occasion to come in. Once they see the new appliances, it is often as easy for them to sign for a new range as it is to buy a cake.

Gas Steam Heating in Store at Clinton, Mass.

The Clinton (Mass.) Gas Light Company has installed two No. 17 Franklin gas steam radiators in a confectionery store in that town—the first instance of all-gas heating in the place.

The same company has replaced electric lighting at a bowling alley with Radio X-30 gas lamps.

Brockton, Mass., Free Lecture on Gas

The Brockton Gas Light Company recently gave the public an opportunity to see and learn the history, manufacture and uses of gas by an illustrated lecture given by George W. Allen.

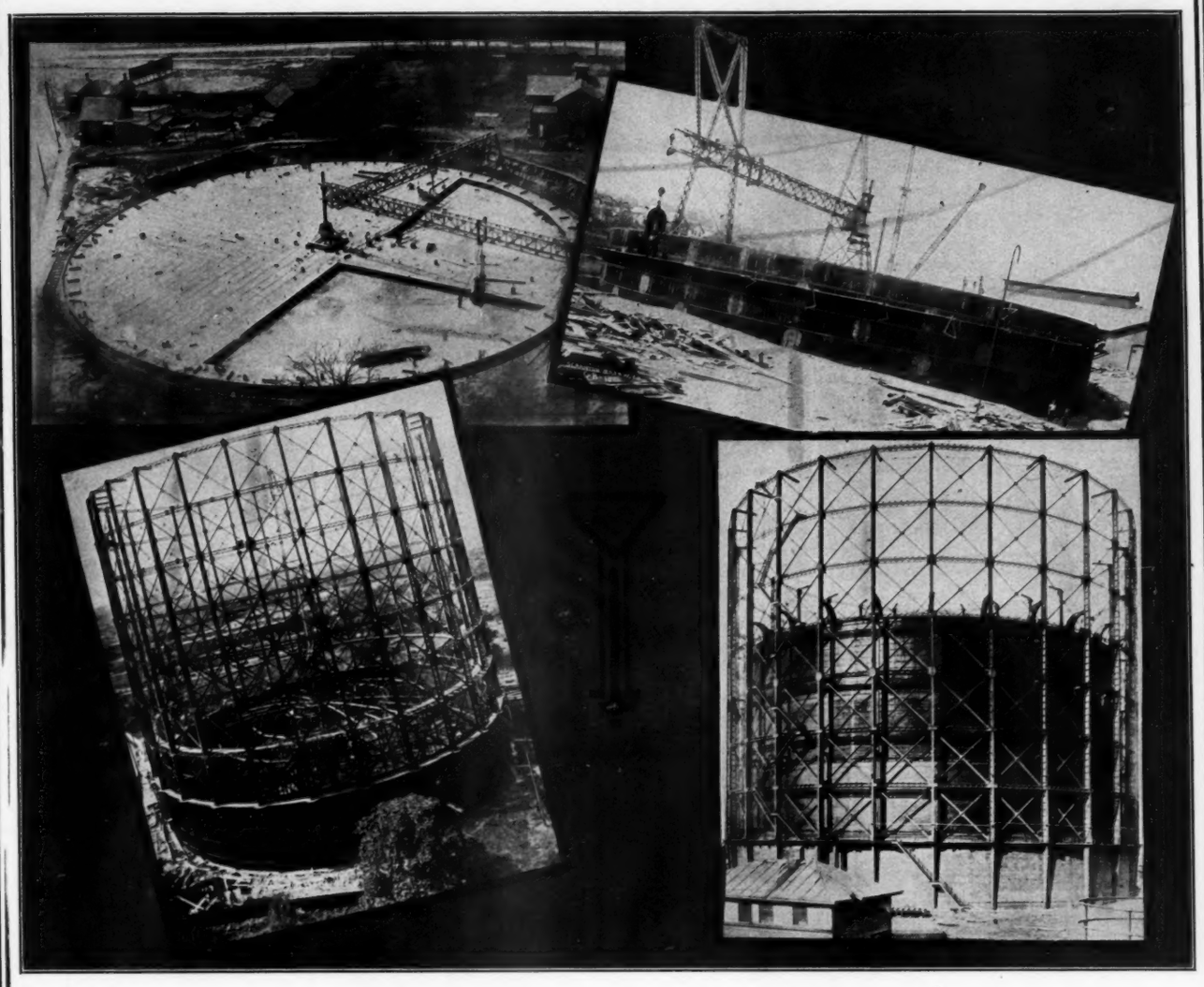
Mr. Allen is educational director of the Toronto Gas Company. His lecture was illustrated by 160 lantern slides and some of the subjects discussed were: The early plant life from which coal is formed; coal mining scenes; early gas inventors; amusing scenes surrounding the early days of gas making; process of gas manufacture, the great dye making industry; an insight into the thousands of wonderful productions derived from the residuals of gas manufacture; coal tar; making shrapnel shells; treatment of steel and metals and hundreds of new developments in uses of gas.

The lecture has met with big success from an entertaining as well as an educational standpoint and as Mr. Allen is making a tour of the important cities, many will profit by it.

Gloucester (Mass.) Gas Light Company Low on Oil Consumption

Records of oil used per thousand cu. ft. of gas made, by companies controlled by the Gas and Electric Improvement Company, Boston, reveal a very low consumption for the Gloucester Gas Light Company, the record being 2.93 gals. Results for nine gas companies for the month ending September 26, and the three months ending on that date, are:

Company	Month to Sept. 26	Three Months to Sept. 26
No. 1	3.07	3.18
2	3.39	3.35
3	2.99	3.08
4	3.39	3.22
5	2.93	2.97
6	3.80	3.85
7	3.08	3.23
8	3.45	3.33
9	3.61	3.73



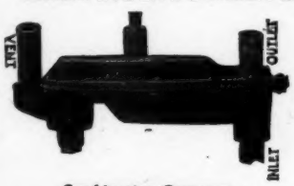
RITER-CONLEY COMPANY

STEEL CONSTRUCTION

PITTSBURGH

REYNOLDS GOVERNORS

We make anything desired in the GAS GOVERNOR or REGULATOR to meet any and all classes of reductions. Stations for DISTRICT SERVICE, INDIVIDUAL HIGH PRESSURE GOVERNORS for reducing high pressure gas to inches of water. Holder and Low Pressure Service Governors A steady, uniform pressure can be obtained by using REYNOLDS GOVERNORS, "THE WORLD'S STANDARD." We make a specialty of the Governor business, devoting our entire time to the manufacture of same. All Governors are GUARANTEED.

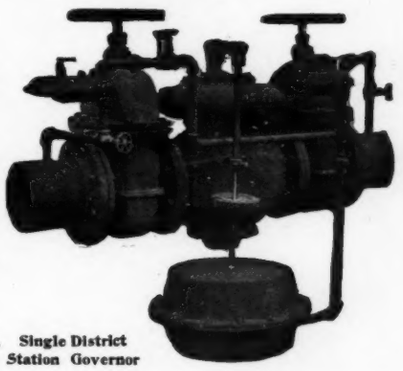


Combination Governor
Governor and Mercury Seal

REYNOLD'S GAS REGULATOR COMPANY

ANDERSON, INDIANA. U. S. A.

Write for instructive Catalog



Single District
Station Governor

Profit Sharing by Gas Companies

Consolidated Gas Electric Light & Power Company of Baltimore, Md., has put into successful operation several plans which have resulted in substantial number of employees and consumers acquiring a proprietary interest in the company. More than 1,700 consumers are buying stock in the company and paying it off in monthly installments, with their gas and electric bills. Of employees, approximately 225 own stock in the company. In addition to this number, about 750 employees are depositing in a savings fund supervised by the company. These deposits bear interest and when sufficient money has accumulated to employee's account his fund is invested in common stock of the company. This is only one of the plans now being entered into by several gas companies throughout the country.

John Connelly, Denver Publicity Manager, Dead

John Connelly, who for 14 years has been the publicity chief of the Denver Gas & Electric Company, died at his home November 1.

Mr. Connelly was formerly one of the best known newspaper men in the West. His ability attracted much attention, securing for him the position with the gas company in 1903. He had been president of the Dartmouth Alumni and his loss is deeply felt in many circles.

Societies and Associations

Illuminating Engineering Society, Pittsburgh Section, will hold a joint meeting with the Cleveland section, A. I. E. E. to-day, November 20, at the Electrical League rooms, Hotel Statler, Cleveland, Ohio. Mr. H. T. Spaulding, of the National Electric Lamp Works, Neala Park, Cleveland, will speak on the subject of "The Lighting of the Home."

Brockton Gas Light Company Employees Association have recently held their third annual ball, which has been a larger success than the previous years.

Personal Notes

W. H. Brown, manager Red River Power Company, Grand Forks, N. D., (one of the Northern States Power Company subsidiaries), has been appointed Chairman of the Publicity Committee of the Grand Forks Commercial Club and a member of the Membership Committee.

C. W. Evelyn of Muskogee Gas & Electric Company has been promoted to the position of auditor for the Sapulpa Electric Company, succeeding E. H. Anderson, who has resigned to go into business for himself.

Herbert Small, formerly of the Twin-State Gas and Electric Company, has accepted a position in Troy.

B. B. Newby, formerly with the Peoples Gas Light and Coke Company of Chicago, has resigned his position of chemist of the 22d station.

Sidney M. Bewlay, formerly salesman for the Clinton Gas Light Company, Clinton, Mass., has accepted a position as sole representative for a brush company for Worcester county.

Horatio K. Bellows, thirty years in the employ of the Springfield Gas Light Company, Springfield, Mass., dropped dead in the store of that company November 7.

G. E. Williamson, who has been connected for 13 years with the Denver Gas & Electric Light Company, Denver, Col., is leaving to assume management of a large electrical supply house in Tulsa, Okla. David Evans, an employee of the gas company, is leaving with Mr. Williamson as contract agent.

Financial Notes

The United Gas & Electric Corporation reports for September gross earnings of the subsidiary companies aggregating $1,271,069, an increase of $135,952 over September of last year. Net earnings were $565,378, an increase of $32,206, and balance after charges $308,217, an increase of $56,389. For the twelve months to Sept. 30 gross earnings were $14,804,865, an increase of $1,583,749; net $6,519,540, an increase of $881,198; and balance after charges $3,060,733, an increase of $777,461. Net earnings of company from all sources for the year to Sept. 30 were $1,469,850, balance for dividends was $933,146, and balance after dividends on the first preferred was $283,210.

The Cumberland County Power & Light Company has declared a dividend of 1 per cent on common stock, payable Dec. 1, to stock of record Nov. 15.

The Republic Railway & Light Company has sold to Harper & Turner of Philadelphia $3,500,000 preferred stock of its subsidiary company, the Mahoning & Shenango Railway & Light Company. Approximately $3,000,000 of this amount is held as collateral under the $3,000,000 note issue of the Republic Company, and from the proceeds of the sale of this stock the Republic Company will pay off the entire $3,000,000 note issue due Dec. 1, 1918.

Current Prices of Public Utility Securities

	Bid	Asked
Adirondack Elec. P.	26	28
Adirondack Elec. P. pf.	82	85
American Gas	120	123
*American Gas & Electric	152	156
*American Gas & Electric pf.	50	51
American Light & Traction	382	385
American Light & Traction pf.	110	113
American Power & Light	74	77
American Power & Light pf.	84	86
American Public Utilities	40	44
American Public Utilities pf.	72	75
American Water W. & Elec.	9¼	10
Amer. W. W. & E. 1st pf.	66	69
Amer. W. W. & E. part'p pf.	23½	26
Carolina Pow. & Lt.	28	31
Carolina Pow. & Lt. pf.	97	100
Cities Service	316	319
Cities Service pf.	91¼	92
Colorado Power	29	32
Colorado Power pf.	100	104
Commonwealth, Pr. Ry. & Lt.	60	63
Commonwealth, Pr. Ry. & Lt. pf.	84	86
Electric Bond & Share pf.	98	103
Empire District El. pf.	90	95
Federal Light & Traction	17	19
Federal Light & Traction pf.	55	60
Gas & Electric Securities	300	325
Gas & Electric Securities pf.	95	100
Northern States Power	103	105
Northern States Power pf.	99½	101
North. Ont. Lt. & P.	14	17
North. Ont. Lt. & P. pf.	56	51
Ozark Power & Water	44	48
Pacific Gas & Electric	64	65
Pacific Gas & Electric pf.	90	91
Republic Ry. & Light Co.	52	54
Republic Ry. & Light Co. pf.	79	81
*Standard Gas & Electric	15½	16½
*Standard Gas & Electric pf.	42¾	43¾
So. Cal. Edison	91	93
So. Cal. Edison pf.	106	109
Tennessee Ry., Light & Power	12	13
Tennessee Ry., Light & Power pf.	51	52
United Light & Railways	48	50
United Light & Railway 1st pf.	79	81
Western Power	18	20
Western Power pf.	70	72

*Par value $50